22 August 2007

MILITARY OPERATIONS RESEARCH SOCIETY

MORS Workshop
Capabilities-Based Planning II
Identifying, Classifying and Measuring Risk in a Post 9-11 World

4-6 April 2006
Booz Allen Hamilton
McLean, Virginia

Chairs:
Tom Allen, FS and Jim Bexfield, FS

1703 N. Beauregard Street ♦ Suite 450 ♦ Alexandria Virginia 22311-1745
(703) 933-9070 ♦ FAX: (703) 933-9066 ♦ email: morsoffice@mors.org
URL: http://www.mors.org

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- The Director of Force Structure, Resources and Assessment, The Joint Staff
- The Director Program Analysis and Evaluation, Office Secretary of Defense

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EXECUTIVE SUMMARY

Background

The second MORS workshop on Capabilities-Based Planning (CBP) was held at Booz Allen Hamilton in McLean, Virginia, 4-6 April 2006. It was a classified meeting supported by the Joint Concepts and Analysis Panel of The Technical Cooperation Program (TTCP) and attended by over 200 analysts. TTCP sponsorship enabled the sharing of data and approaches with analysts from the United Kingdom, Canada and Australia. The goal was to build on the results of the October 2004 MORS CBP workshop, with emphasis on developing and assessing analytic approaches across the spectrum of CBP applications and risk measurement.

The workshop began with a special Monday tutorial session attended by over 70 participants. Briefs included an overview of the MORS 2004 Workshop by Jim Bexfield, FS, and refreshers on Adaptive Planning (Tim Hoffman), Joint Capability Integration and Development System, or JCIDS (Bill Cooper), Joint Capability Areas, or JCAs (Joe Bonnet), and the Analytic Agenda (Jim Stevens).

Keynote Addresses

On Tuesday, the main workshop began with five keynote addresses, providing leadership perspective on the DoD's progress in instituting a CBP approach to decision making. The presentations emphasized the importance of analysis in the realization of CBP. Brief overviews follow.

Ken Krieg, Under Secretary of Defense (Acquisition, Technology and Logistics), OSD, noted that we are in an era of difficult decisions as we transform the force to respond to post-9/11 challenges with constrained resources. He defined three capability decision levels: 1) *Strategic choices,* which determine the appropriate balance among capabilities — What is the right mix of capabilities to achieve defense goals?; 2) *Portfolio choices,* which seek to balance resources within capability areas — What is the right mix of assets for a specific capability area?; and, 3) *Weapon system choices,* which balance time, performance, money, and risk considerations in weapons acquisition decisions — What's the right solution for a specific system? In the past, most analyses supporting defense decision making have focused on weapon systems. The Department has initiated a new approach that places increased analytic emphasis on portfolio choices. This includes conducting experiments to jointly manage four capability areas: 1) Battlespace awareness; 2) Joint command and control (C2); 3) Net-centric operating environments; and, 4) Joint logistics. According to Under Secretary Krieg, leveraging joint capabilities will require a cultural commitment to joint capability development. He stressed that CBP will be key to improving DoD governance and decision processes.

Christopher "Ryan" Henry, Principal Deputy Under Secretary of Defense for Policy, discussed relevant aspects of the 2006 Quadrennial Defense Review (QDR). He noted that the focus of the Department's force and capability planning efforts has shifted from traditional challenges to irregular, catastrophic, and disruptive challenges. Mr. Henry described the three

principal areas of emphasis in the new force planning construct: 1) *Steady-state and surge operations,* including homeland defense, irregular warfare, and conventional campaigns; 2) *Tailored deterrence* of advanced military competitors, rogue states, and terrorist networks, along with *strengthened deterrence* against opportunistic aggression/coercion; and, 3) A *two-war capacity,* with varying levels of effort and stresses on the force. Mr. Henry also underlined the need for adaptive planning, a concept that promises to significantly reduce the time it takes to develop war plans, while keeping plans relevant to the strategic situation. Finally, Mr. Henry challenged the group to develop better means for identifying and accounting for uncertainties and risks in force structure planning.

VADM Marty Chanik, Director for Force Structure, Resources and Assessment (JCS J8), issued several challenges to the workshop participants. First, he cited the need to develop better methods of using risk and readiness measures in the identification of capability gaps. Second, he called for better aligned processes to support capability trade-offs and the development of offsets. Third, he emphasized the need to develop concepts that support new warfighting paradigms. Fourth, he called for enhancements in our ability to assess force sufficiency and to identify adequate force substitutions when the first choice is not available. Toward these ends, ADM Chanik noted that J8 is developing an instruction that will provide an overarching framework for synchronizing CBP processes and priorities.

Brad Berkson, Director, Program Analysis and Evaluation, OSD, addressed the challenges of conducting analysis faster and better, of using analysis for cross-capability trades, and of measuring force sufficiency. Mr. Berkson praised the Analytic Agenda for providing a transparent and collaborative environment in which DoD can conduct major joint analyses and for establishing an organizational structure that fosters the development and sharing of data across organizations. His challenges included the need to improve our ability to link strategy, plans, resources, and execution and to balance risks at all of the capability decision levels described by Under Secretary Krieg.

RADM Richard Mauldin, Director for Operational Plans and Joint Force Development (JCS J7), was unable to attend, but Joe Bonnet ably delivered his presentation. Mr. Bonnet began by reviewing the progress the Department has made in linking four key initiatives: 1) Joint Capability Areas; 2) Concept Development and Experimentation; 3) the Analytic Agenda; and, 4) Adaptive Planning. Next, he summarized the guidance that the Secretary of Defense has provided in this area and presented a progress report on the implementation and development of the 21 Tier I JCAs. Mr. Bonnet concluded with a description of the joint capability development process, in which policy guidance is translated into warfighting concepts, which in turn guide the identification of Joint Capability Areas and material and nonmaterial solutions.

For the most part, the other plenary presentations elaborated on the concepts discussed in the keynote addresses. Terry Gerton of OSD(PA&E) detailed efforts to apply the capabilities lexicon to program and budget databases. COL Pat Kelly, OSD(Policy), addressed the CBP implications of the QDR. COL Steve Lanza, Joint Staff (J8), provided a JCIDS overview, while Jane Rathbun of OSD(PA&E) discussed her work on institutional reform and governance. On Thursday, Jim "Raleigh" Durham, OSD(AT&L), discussed concept decision implementation. Gary Christopher (Canada) offered an allied perspective of the role of CBP in the Canadian defense

establishment. Dr. Ben Taylor (UK, TTCP) introduced a new theme in a presentation comparing the CBP approaches used by various countries. Dr. Taylor's remarks focused on the specific processes in use, how scenarios are considered, and capability partition schemes. He also provided an overview of capability engineering, which may be viewed as an extension of system engineering techniques to develop solutions to capability requirements.

Tuesday's plenary session concluded with a summary by the Synthesis Working Group Chair, **Stu Starr, FS**, of the challenges set forth in the keynote addresses. These challenges shaped the discussion during the remainder of the workshop:

- How do we address questions of *risk and uncertainty*? Specifically:
  - Where can we take risks?
  - How does one balance risks?
  - [Note: These questions ultimately will be answered by the *DoD Leadership*, based on analytic insights.]
- How do we strengthen the *linkages among key institutional processes* (e.g., strategy, plans, resources, execution) *and organizations*?
  - How do we govern and manage at the seams?
- What *methodologies and tools* are needed to address the key challenges and issue areas highlighted in the QDR?
- How can we *raise the decision level* to capabilities and portfolios?
  - How can high levels of aggregation be linked, unambiguously, to allocations of resources?
  - How does analysis support trade-offs within and across portfolios?

Working Group Summaries

Six working groups, representing a wide cross-section of the US and allied defense establishments, met from Tuesday afternoon through Thursday to discuss these issues. Their conclusions and recommendations are summarized below.

Working Group 1 - Capabilities-Based Planning and the QDR
Chair, Chris Lamb (NDU)

This working group identified several needs that have not yet fully been met, including: 1) A Department-wide framework, language, and metrics for valuing and comparing capabilities; 2) A transparent methodology for strategic risk assessment and management; 3) A comprehensive set of scenarios, conditions, and assumptions; 4) A deep, responsive joint analytic capability and capacity; and, 5) Alternative concepts of operation.

The major recommendation emerging from the group's discussion was for the establishment of a decision support cell, working directly for senior leaders that would be collaborative yet authoritative. The support cell would help guide decisions involving hard choices by providing risk assessments derived, in many cases, from analyses done by others.

Working Group 2 - Improving the CBP Process: Strategy to Joint Concepts to JCIDS
Chair, Joe Bonnet (JCS J7)

This group concluded that concept development (intellectual investment and shared understanding and vision) is key to the development of innovative joint force capabilities. The working group recommended that Joint Functional Concepts become the common decision framework for portfolio management. The group postulated that better concepts could be developed through the explicit analysis of risks and uncertainties; through the inclusion of more scenarios and wargames in planning activities; through the fostering of a competition of ideas (multiple blue teams/CONOPS); through the use of Red Teaming (adversarial and mentoring); and, through rigorous experimentation.

Working Group 3 - Improving the CBP Process: JCIDS to Acquisition
Chair, Mike Novak (OSD AT&L)

This working group examined the synchronization of three principal DoD decision processes — requirements, acquisition, and programming. The group explored how Evaluations of Alternatives (EoAs) could better support concept decisions (CDs) and how they could be linked to and synchronized with the JCIDS process. The CD and EOA constructs are intended to facilitate senior leadership decisions on ways to meet joint warfighting needs within fiscal constraints, at acceptable levels of risk.

WG 3 reached the following conclusions:

1) All three decision processes (requirements, acquisition, and programming) need to inform and mutually support decisions to invest or divest.
2) Needs and investment strategies must be validated through CD reviews before solutions are implemented.
3) Analyses must be joint, capabilities/portfolio based, and reflect a strategic perspective.
4) Analyses must be timely and sufficiently robust to identify the decision space and associated risks.

Working Group 4 - CBP Support to Strategic Decisions across Domains
Chair, Kirk Yost (MITRE)

This working group, benefiting from Australia, Canada, and United Kingdom TTCP participation, observed that trade-offs across domains occur for two reasons: 1) Strategic shifts in the balance of forces resulting from changes in assigned missions; and, 2) Shifts in ways to accomplish those missions. The group observed that the DoD needs better mechanisms for exploring cross-domain trade-offs. With that in mind, the group noted that cross-domain analyses must have a common context across domains, and the only common analytical context is scenarios; and, multiple scenarios must be employed in order to identify a robust force with diverse capabilities. With those conditions met, cross-domain decisions could reflect a balance of risks determined by analyzing options across the set of scenarios. The group recommended that the United States improve its ability to operate alongside its allies through the explicit sharing of scenarios, along with force employment and capability data.

Working Group 5 - CBP Support to Decisions within a Domain
Chair, David Markowitz (HQDA, CAA)

This group provided observations in four major areas: the Analytic Agenda; analytic methodologies; risks; and JCAs. The group recommended that: 1) The suite of scenarios incorporated in the analytic agenda be expanded to include nontraditional areas; 2) Based upon further guidance on risk tolerance from the DoD leadership, common risk measures that take consequences and probabilities into account be developed; and, 3) Resource management activities and processes be streamlined. In this last area, the group recommended that a capabilities planning instruction be issued to foster the necessary unity of effort. The group also noted that more than a taxonomy is needed to link processes, and that several lessons can be learned by examining allied CBP efforts.

Working Group 6 - Capabilities Packaging in Adaptive Planning
Chair, Tim Hoffman (OSD, Policy)

This group concluded that an Adaptive Planning system would enable planners to develop plans rapidly, adapt them quickly, and help manage capabilities/forces and risks across planning and operational requirements. The group recommended the adoption of capability package templates for JCAs as a way to help commanders articulate capability gaps/excesses to programmers. The group suggested that collaborative suites of tools would facilitate capability trade-off decisions in force planning activities, with the caveat that human collaboration and professional judgment must be the final arbiter.

Synthesis Group
Chair, Stuart Starr, FS (BRI/NDU)

The Synthesis Group recommended continuing the development of the "Esperanto" for CBP, employing multidisciplinary teams to perform CBP, understanding decision makers' needs and styles, and building on the lessons of history (CBP is "back to the future"). The group reinforced the need for comprehensive scenarios and suggested that more emphasis be placed on human/organizational issues, citing nonmaterial solutions as an area requiring closer attention. The group noted additional shortfalls in currently available methods and tools for addressing risk—specifically, the need for a mix of tools and explicit risk guidance and treatment. The group observed that CBP frameworks and concepts provide a shared context and require both top-down and bottom-up activities to be successful. From the group's perspective, the workshop served to clarify the nature of the problems the Department has encountered in conducting CBP, as well as the state of the practice and the obstacles the DoD faces in moving forward. Finally, the group cautioned against making the implementation guidance too complex, stressed the need to inculcate the CBP culture into the Department's future leadership ranks, and suggested that the next major challenge will be to extend CBP to the interagency environment.

MORS owes special thanks to Booz Allen Hamilton for hosting the workshop and to Alexis Lloyd, Stacey Higgins, and Ginny Wagner of the Booz Allen Hamilton staff for their flawless execution of the event. Special thanks also go to Ben Taylor from the United Kingdom for

leading the TTCP contingent, and to Brian Engler and Natalie Kelly of the MORS staff for their usual superb administration.

WORKSHOP SUMMARY

Background

A MORS Workshop entitled "*Capabilities-Based Planning II: Identifying, Classifying and Measuring Risk in a Post 9-11 World"* convened at Booz Allen Hamilton, in McLean, Virginia, 4-6 April 2006. Over 200 analysts and defense decisionmakers participated. Among the attendees were representatives from the Joint Concepts and Analysis Panel of The Technical Cooperation Program (Australia, United Kingdom, and Canada).

Workshop Overview

The workshop was comprised of three sessions: 1) A pre-workshop seminar; 2) The plenary keynote addresses; and, 3) The working group workshops.

1. The Pre-Workshop Seminar (CBP update briefings on 3 April 2006). A special pre-workshop session familiarized attendees with CBP concepts. The intent of this session was to develop a common understanding among all workshop attendees of the current state of CBP development and implementation.

2. Plenary Keynote Addresses (Day 1, 4 April 2006). On Tuesday, the plenary session began with keynote addresses by senior defense officials, providing their perspectives on the challenges to be encountered in dealing with uncertainties and in balancing and adjudicating risks.

3. Workshops (Days 2 and 3, 5-6 April 2006). The keynote addresses were followed by a two-day workshop on Wednesday and Thursday. The participants were divided into six working groups: 1) CBP and the QDR; 2) Improving the CBP Process: Strategy to Joint Concepts to JCIDS; 3) Improving the CBP Process: JCIDS to Acquisition; 4) CBP Support to Strategic Decisions Across Domains; 5) CBP Support to Decisions within a Domain; and, 6) CBP and Adaptive Planning. A synthesis group examined insights across all six working groups and developed a cross-cutting set of workshop findings. At a final plenary session, the groups presented outbriefs, summarizing their deliberations, observations, findings, and recommendations.

Pre-workshop Seminar

Because the art of CBP has been advanced significantly since the last CBP workshop, Jim Bexfield, FS and Tom Allen, FS coordinated a program of presentations to update attendees unfamiliar with recent CBP developments.

- **"MORS Workshop on CBP: The Past and the Present**," presented by Jim Bexfield, OSD(PA&E), reviewed CBP objectives, terminology and levels. Jim also provided the allied perspectives along with the view of CBP from the standpoints of acquisition, methodology, current operations, and future force planning.
- "**Adaptive Planning Overview,**" presented by Tim Hoffman, OSD(Policy), offered a vision of how adaptive planning could make the deliberate planning process more responsive and relevant in today's dynamic security environment.
- In the "**JCIDS Overview,**" Bill Cooper, JCS J8, described the Joint Capability Integration and Development System and how the capabilities-based methodology could be used to link concepts to capabilities. Bill also described the joint integrating concepts process as well as JCIDS oversight.
- The "**Joint Capability Areas**" brief presented by Joe Bonnet, JCS J7, covered the status of the tiered joint capability areas and described their connection to the Planning, Programming, Budgeting and Execution System.
- In "**Analytic Agenda 101,**" Jim Stevens, OSD(PA&E), discussed the Analytic Agenda process, products and management along with the objective of the Analytic Agenda to improve the quality and consistency of DoD analyses through the use of analytical baselines, which permit "warm start" analyses.

Keynote Addresses

Ken Krieg, Under Secretary of Defense for Acquisition, Technology and Logistics, posited his assumptions that we: 1) Face an era of strategic choices; 2) Will continue to operate as a joint force; and, 3) Will continue to equip primarily as Services and agencies. He stated that optimizing joint capability does not always equate to the summing of Service and agency programs; and governing and managing at the seams among various entities is difficult. In the many situations where the importance of leveraging joint capability is high, he sees a requirement for a uniformly high degree of cultural commitment to such an effort. He described capability at three force development decision levels (Figure 1): 1) *Strategic choice,* which requires balance among capabilities — what kinds and how much capability do I need to achieve effects? 2) *Portfolio choice,* which seeks to balance seams, gaps, and overlaps within a capability — what is the right mix of assets within a capability? and, 3) *Weapon systems choice,* which tries to balance time, performance, money, and risk considerations within a system — what is the right system solution? Under Secretary Krieg described three means of addressing capability management: first, establishing a common framework and using federated management; next, joint management that employs decentralized execution; and lastly, joint management and execution. Depending on the degree of joint management, capability portfolios may differ. Mr. Krieg also addressed force development roles (Figure 2) in shaping experimentation at the governance, management and implementation levels. He plans to conduct joint management test cases (Figure 3) for battlespace awareness, joint command and control, net-centric operating environments, and joint logistics with assistance from the Institutional Reform and Governance Roadmap team. Under Secretary Krieg sees capability-based planning as key to achieving improved governance and decision processes, one of his six AT&L goals.

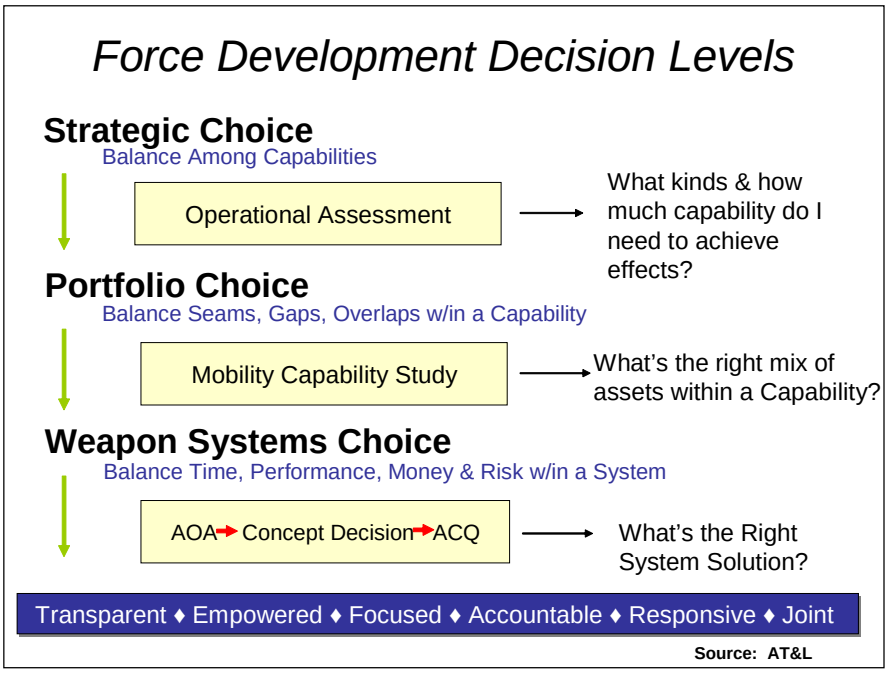


Figure 1: Force Development Decision Levels

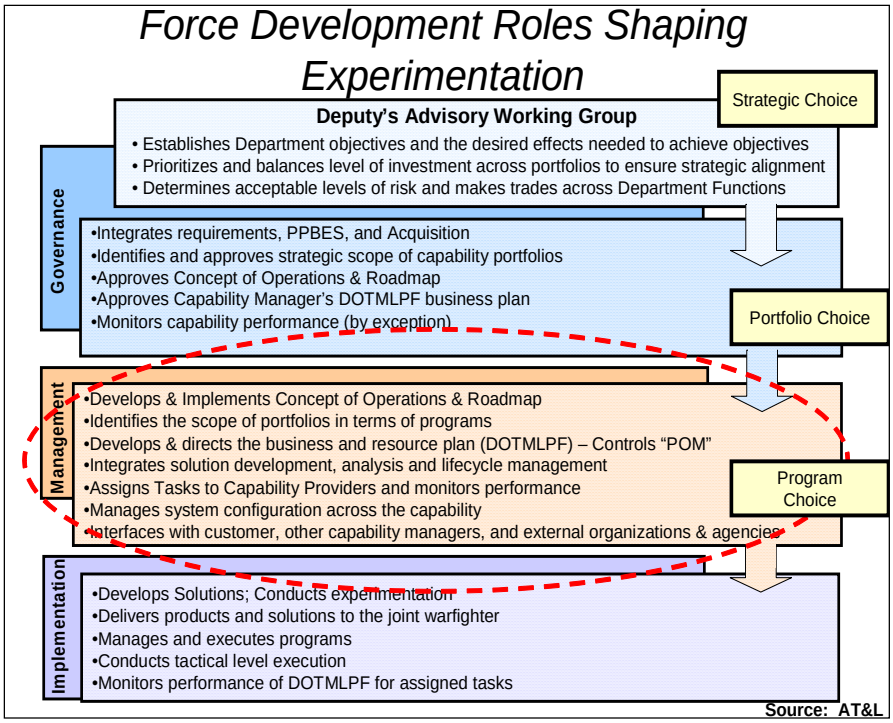


Figure 2: Force Development Roles Shaping Experimentation

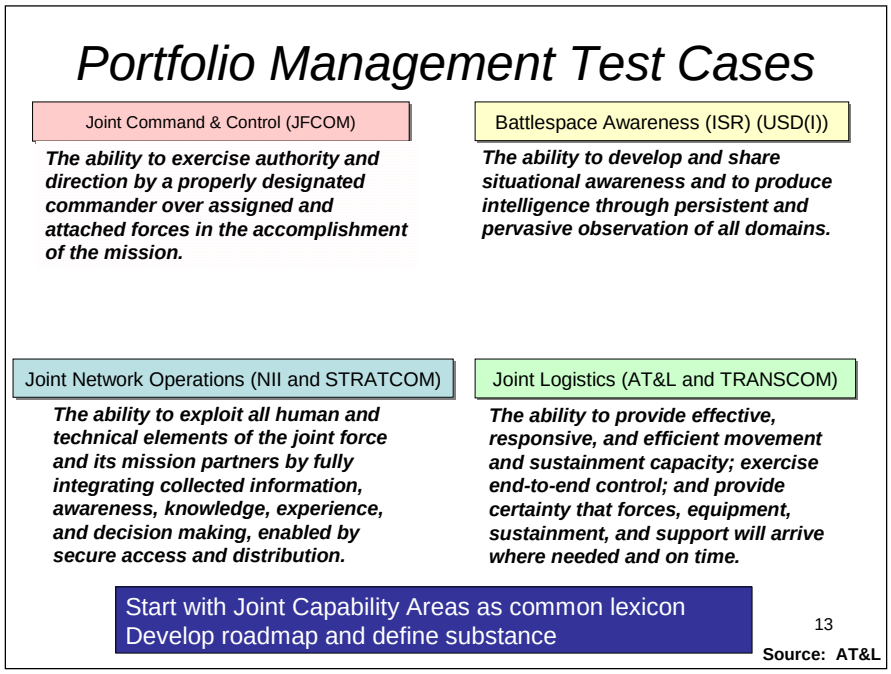


Figure 3: Portfolio Management Test Cases

Christopher "Ryan" Henry, Principal Deputy Under Secretary of Defense for Policy, presented the "Results of the 2006 QDR." The QDR capitalized on lessons learned from operational experiences of the past four years. He noted the requirements for understanding uncertainty and unpredictability, building partnership capacity, developing early anticipatory measures, and promoting unity of effort. Mr. Henry explained the QDR objective as one of shifting focus from the traditional challenge area sector to the irregular, catastrophic and disruptive quadrants (Figure 4). He described the three aspects of the new construct for shaping the future force (Figure 5): 1) *Steady-state and surge operations* that include homeland defense, irregular warfare, and conventional campaigns; 2) *Tailored deterrence* of advanced military competitors, rogue states, and terrorist networks, along with strengthened deterrence against opportunistic aggression/coercion; and, 3) a *two-war capacity* at varying levels of effort that stress force elasticity. Mr. Henry further detailed the Secretary's intent to employ adaptive planning concepts to dramatically reduce the amount of time required to develop plans, to increase dialogue with combatant commanders during plan development, to provide multiple feasible options, to keep plans relevant to the strategic situation, and to apply the focus of effort to the highest priority plans. Mr. Henry challenged the group to develop the means to better understand uncertainty and to deal with risk.

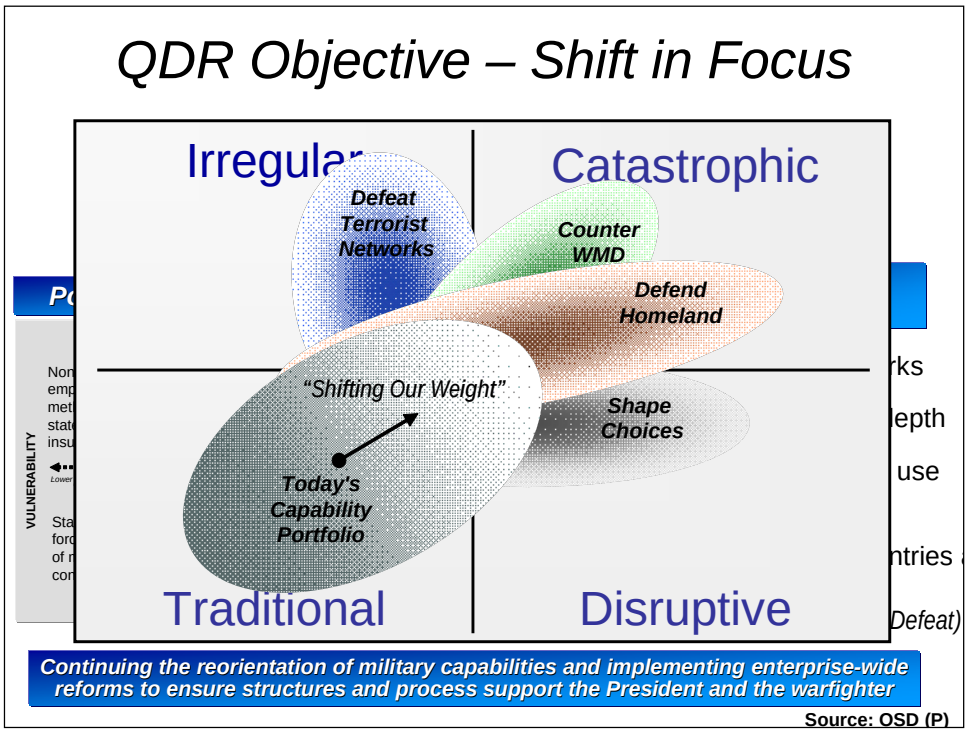


Figure 4: QDR Objective—Shift in Focus

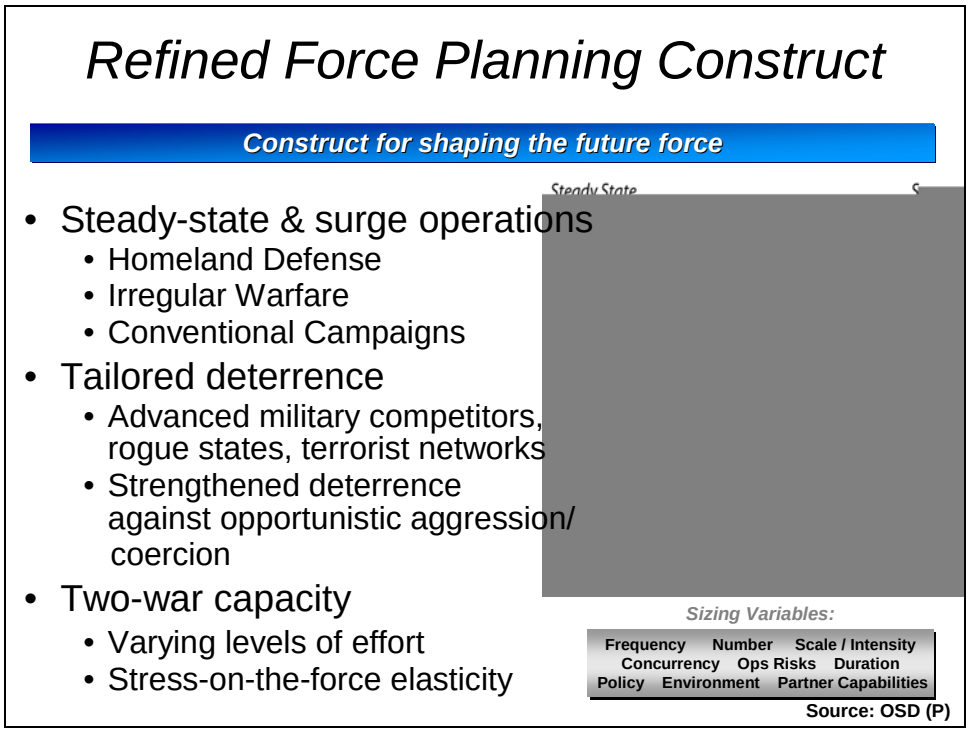


Figure 5: Refined Force Planning Construct

VADM Marty Chanik, Director, Force Structure, Resources and Assessment, described the CBP challenges as: 1) Linking risk and readiness measures to the identification of capability gaps; 2) Better aligning decision processes to support capability trade-offs and the development of offsets; 3) Developing concepts that support new warfighting paradigms; 4) Enhancing our ability to assess force sufficiency and substitution; and, 5) Providing specific analytic support to senior decision makers. To synchronize processes and priorities, the JCS plans to publish a CBP instruction (Figure 6) that creates an overarching CBP framework to translate DoD guidance/policy into joint force capabilities.

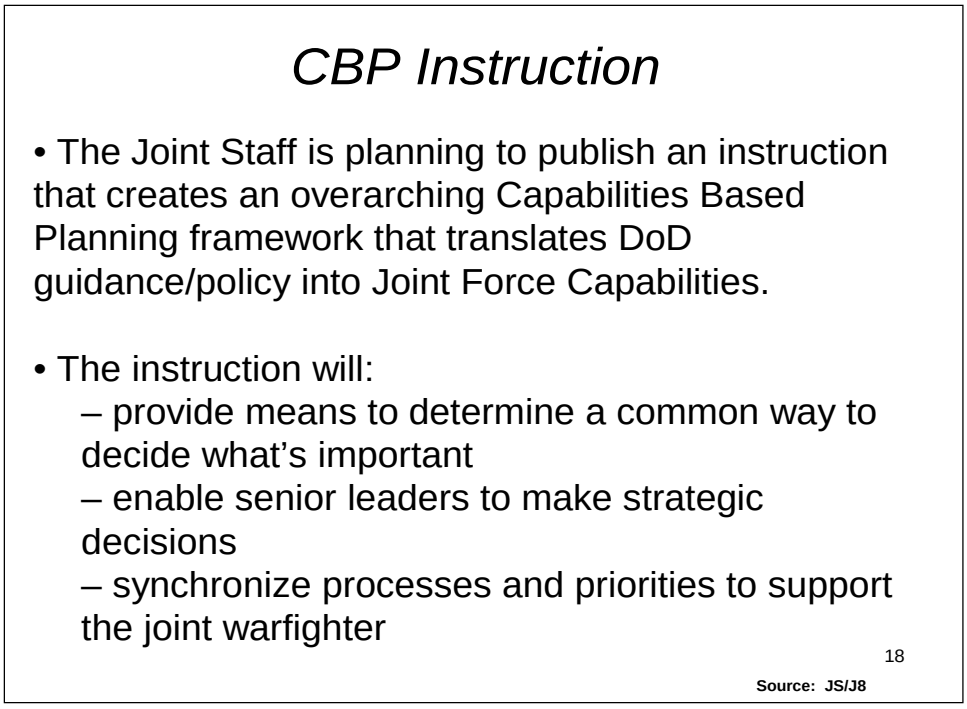


Figure 6: CBP Instruction

Brad Berkson, Director, Program Analysis and Evaluation, presented his discussion on "Capabilities-Based Planning: The View from PA&E," in which he described the analytical challenges to conducting analysis faster and better, using analysis to help with cross-capability trade-offs, performing strategic risk assessment, and determining how much is enough. To achieve faster and better analysis, Mr. Berkson sees the Analytic Agenda as a promising process that has established a transparent and collaborative environment for major joint analyses in the Department. The Analytic Agenda has created an environment and structure that has fostered the development and sharing of data across organizations, resulting in an extensive set of databases applicable to end-of-FYDP scenarios. According to Mr. Berkson, however, we still need to better understand and analyze irregular warfare and better support force sizing analyses. With regard to strategic risk assessment, he described ongoing work to measure risk across six challenge areas (Figure 7): 1) Major Combat Operations; 2) Stability Operations; 3) Homeland Defense; 4) Counter Terrorism; 5) Combating WMD; and, 6) Shaping Strategic Choices. The assessment methodology included a calibrated consequences scale (Figure 8) depicting risk

levels derived from interviews conducted during 2004 and 2005 with 27 senior-level defense officials (e.g., OSD under secretaries, Service chiefs, and combatant commanders). Mr. Berkson expressed his belief that the greatest challenges facing the Department are: 1) Establishing facts and becoming more transparent in our analysis; 2) Linking strategy, plans, resources, and execution; and, 3) Balancing risks and raising decisions to the capability and portfolio levels. He said that the next step is supporting the new portfolio constructs with fresh approaches to analysis, new business rules, etc.

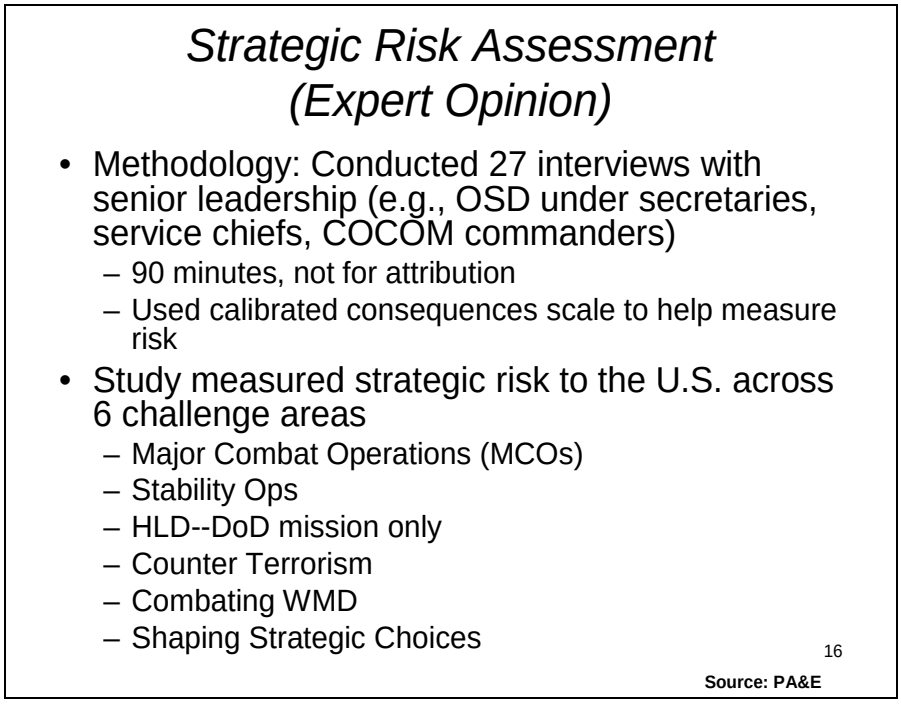


Figure 7: Strategic Risk Assessment (Expert Opinion)

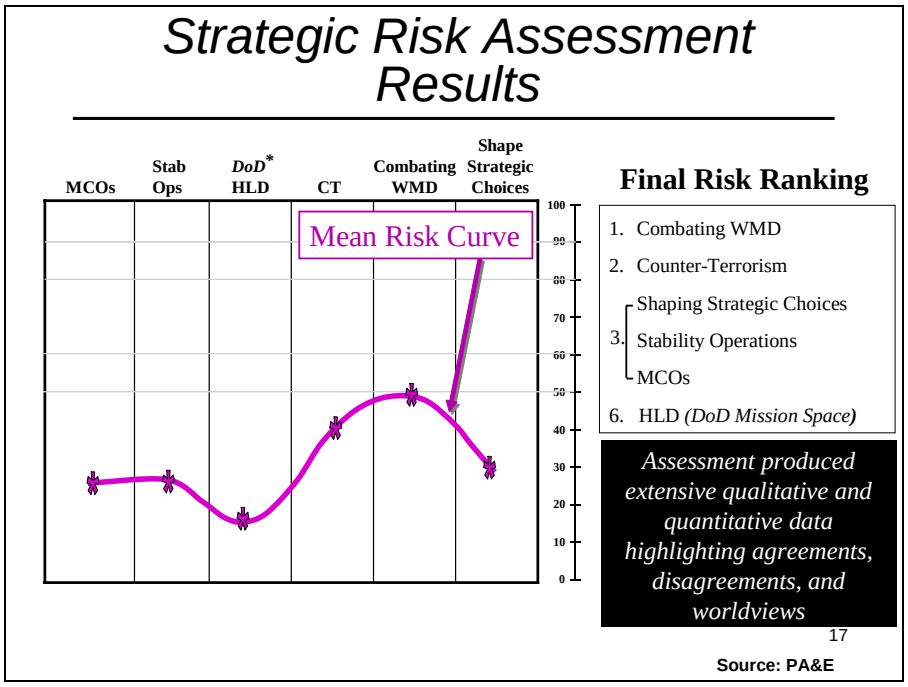


Figure 8: Strategic Risk Assessment Results

Mr. Joe Bonnet delivered the JCS J7 briefing on "Capabilities-Based Planning and Joint Force Development," which offered the JCS J7 vision and perspective on joint force development within a capability-based framework. He detailed the progress made in linking JCAs, Concept Development and Experimentation, the Analytic Agenda, and Adaptive Planning. The presentation noted the support of the Secretary of Defense for using the 21 Tier I Joint Capability Areas (Figure 9) developed by JCS J7 and JCS J8. Mr. Bonnet went on to describe strategic-level work with respect to the Joint Operations Concept family, comprising the Capstone Concept for Joint Operations, Joint Operating Concepts, Joint Functional Concepts, and Joint Integrating Concepts. He also highlighted DoD efforts to make joint analyses more effective, efficient, and relevant through development of Defense Planning Scenarios, Multi-Service Force Deployment data, and studies — all of which form a path to the establishment of Analytical Baselines. Lastly, he described the joint capability development process that translates policy guidance into warfighting concepts, which in turn guides the identification of Joint Capability Areas and material and nonmaterial solutions. This process will improve the Department's ability to provide operational capability in the form of fielded systems that meet warfighter needs.

Figure 9: Tier 1 Joint Capability Areas

Other plenary presentations provided thought provoking commentary on the state of CBP. On Wednesday, Dr. Ben Taylor (UK), representing The Technical Cooperation Panel (TTCP), described the efforts of international colleagues (Canada, Australia, United Kingdom, and New Zealand) and compared their approaches. Terry Gerton, OSD(PA&E), detailed efforts to apply the capabilities lexicon to program and budget databases (Figure 10). COL Pat Kelly, OSD(Policy), addressed the implications of the QDR. COL Steve Lanza, JCS J8, provided a JCIDS overview, while Jane Rathbun, OSD(PA&E), discussed institutional reform and governance. Jim Bexfield ended the day by reviewing results of the 2004 workshop. On Thursday, two additional plenary briefs were delivered: one by Jim "Raleigh" Durham, OSD(AT&L), addressing Concept Decision Implementation; and the other by Gary Christopher (Canada), discussing the role of CBP in the Canadian defense establishment.

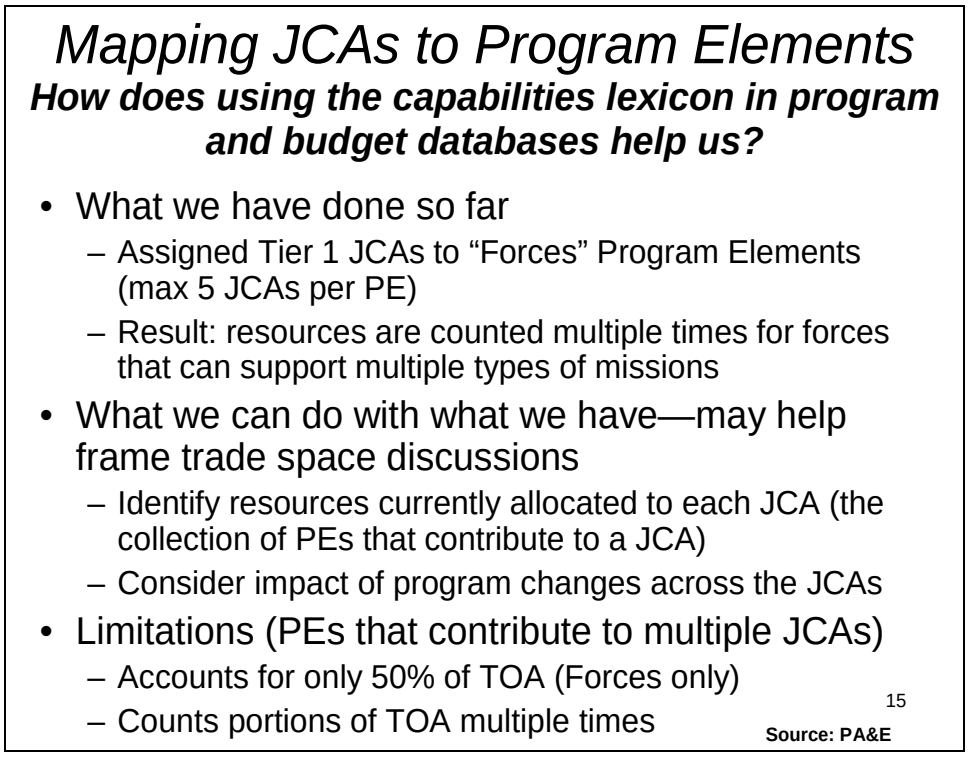


Figure 10: Mapping JCAs to Program Elements

Working and Synthesis Group Reports

WG 1: Capabilities-Based Planning and the QDR. WG 1, chaired by Chris Lamb, identified several needs that are not fully in place today. The group recommended a decision support system in the form of a decision support cell, directly supporting senior leaders, which is collaborative yet authoritative. WG 1 slides begin on page 17.

WG 2: Lexicon, Taxonomy, and Implementation of Capabilities Based Planning. Chaired by Joe Bonnet, WG 2 addressed the relationship between strategy and concepts, observed the progress with CBP, JCIDS and Concepts over the last three years, and suggested initiatives to improve the linkages among strategy, concepts and JCIDS. WG 2 slides begin on page 29.

WG 3: Improving the CBP Process: JCIDS to Acquisition. Chair Mike Novak's working group observed that all three decision processes (Requirements, Acquisition, and Programming) should inform and mutually support the decision to invest or divest. They suggested that Evaluation of Alternatives, done earlier in the JCIDS cycle, would facilitate possible non-material solutions and better support decisions throughout the life cycle. WG 3 slides begin on page 47.

WG 4: CBP Support to Strategic Decisions across Domains. The working group chaired by Kirk Yost observed that cross-domain analysis cannot occur without a common context across the domains, and the only context that is common and analyzable is scenarios. We must

examine and manage options based on risk across multiple scenarios to develop a robust force. WG 4 slides begin on page 65.

WG 5: CBP Support to Decisions within a Domain. Working Group 5, chaired by Dave Markowitz, identified the need for common risk measures (force employment, force management, institutional, future force) and guidance on risk tolerances. The group suggested the need for streamlined product and processes, and use of scenario prioritizations to prioritize capability portfolios with a common library of joint effects. WG 5 slides begin on page 85.

WG 6: CBP & Adaptive Planning. Chaired by Tim Hoffman, WG 6 reviewed Adaptive Planning as the joint capability to create and revise rapidly situationally relevant plans to a high level of quality. The group observed that: (1) the current capabilities language is inadequate to address AP key concepts; (2) there is a need for a collaborative suite of tools to tee up capability tradeoff decisions in plan development; and (3) JCAs are an important link between operational planning and the programming communities. WG 6 slides begin on page 97.

Synthesis Group. Stuart Starr, the group chair, captured the challenges offered by the keynote speakers and made several overarching observations. The group observed that capabilities-based frameworks and concepts provide a shared context for planning and force development while facing uncertain futures. Synthesis Group slides begin on page 113.

MORS Workshop Outbrief:

Capabilities-Based Planning II - The Road Ahead

Working Group 1 Report

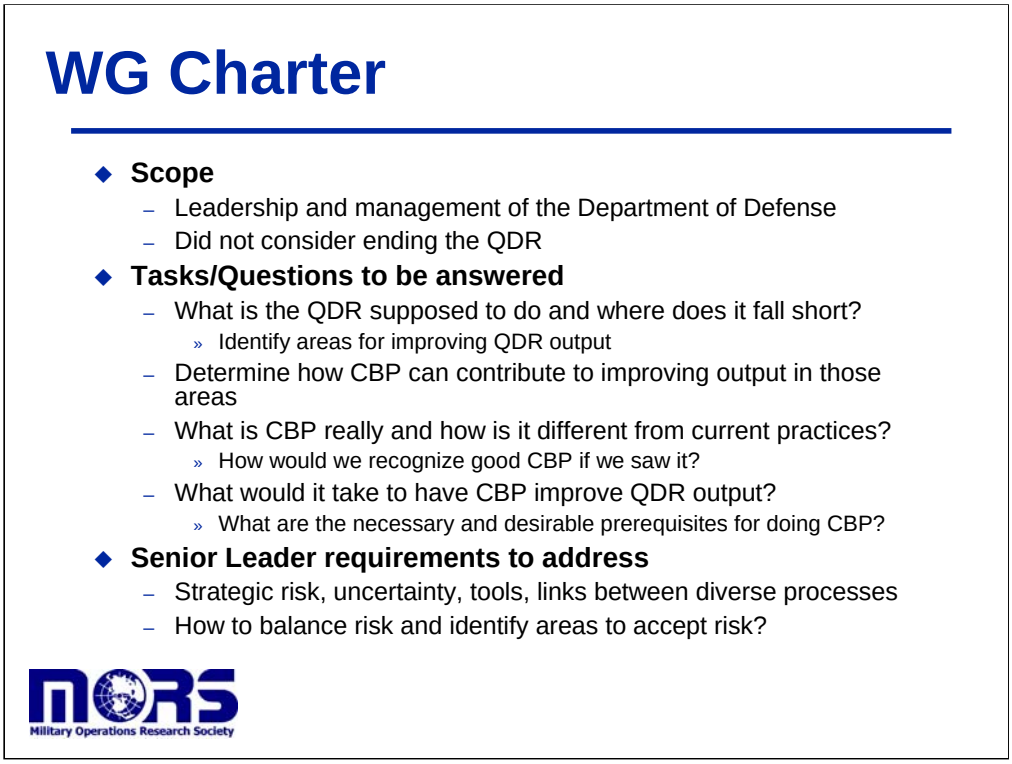
Capabilities-Based Planning and the QDR

Chairs: Chris Appleby, Web Ewell, Pat Kelly, Chris Lamb and Mike Fitzsimmons

6 April 2007 – Alexandria, VA

This briefing has been reviewed by all the members of the working group, including the following notes pages. Any major dissenting opinion is noted where appropriate.

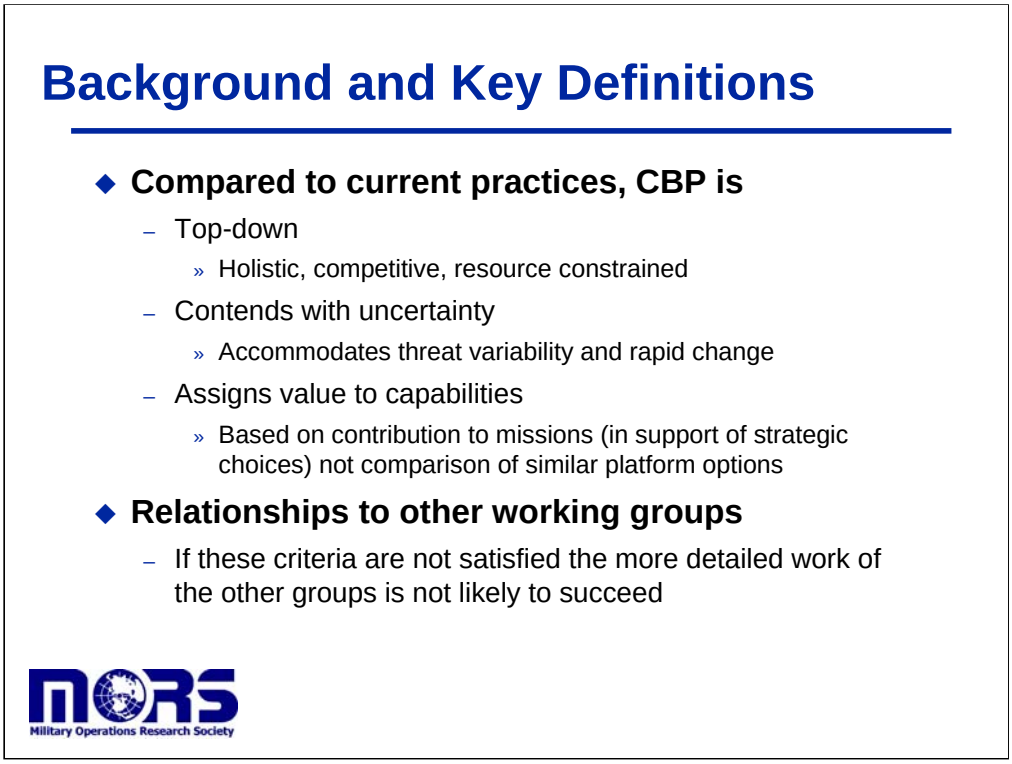
The membership of the group was diverse. Dr. Lamb and Fred Frostic have experience working in Policy at the Pentagon. The analytic community was well represented with current senior leaders from RAND and IDA present. Many participants such as Paul Davis, John Tillson, Chuck Werchado and Bill Chiaramonte have or still are working at PA&E. Among active duty military the Army, Navy and Air Force were represented.



The charter of this working group was broad. We were to look at what the Quadrennial Defense Review (QDR) was intended to accomplish and what it has historically accomplished. Assuming room for improvement could be demonstrated, we were to consider how Capabilities-Based Planning (CBP) might contribute to the next QDR. Doing so would require some reference to what CBP is and its distinguishing characteristics.

Assuming we know what CBP is, what distinguishes it from previous planning systems and how it could plausibly contribute to the QDR exercise, the working group was chartered to make recommendations for improvements.

In doing so the working group was to pay particular attention to senior leaders' concerns, including how to balance strategic risk, contend with uncertainty, apply appropriate tools, and forge links between diverse processes.

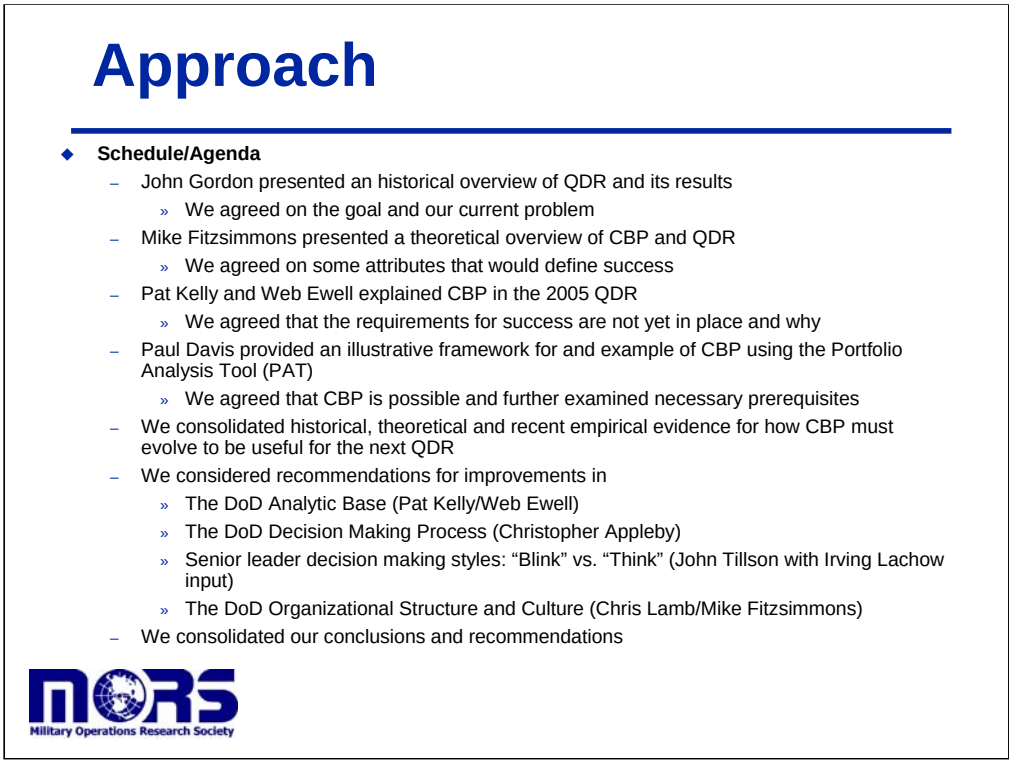


The working group essentially agreed with the conclusions reached and briefed by Mike Fitzsimmons of IDA on the distinguishing characteristics of CBP and the attendant prerequisites for successful CBP in support of the QDR.

Mike noted that in theory CBP is to be top-down, contend with uncertainty and assign values to capabilities-based on their contributions to mission outcomes rather than static comparisons with similar platform options. He described some of the second-order consequences of these CBP attributes, including the need to value capabilities in part by referencing how robust they are across a broader mission set.

There was discussion as to whether these distinguishing attributes of CBP really differed from PPBS and systems analysis properly construed. There was some debate on this point. Some thought that these principles were not inconsistent with original systems analysis principles and others were inclined to believe that CBP puts far more emphasis on mission output and operating concepts than systems analysis. Still others, including Paul Davis, thought that they had long been doing CBP and could cite examples.

However, all agreed that if CBP worked according to the principles and attributes briefed by Mike, it would be far different than what the PPBS (or PPBE) system has become.



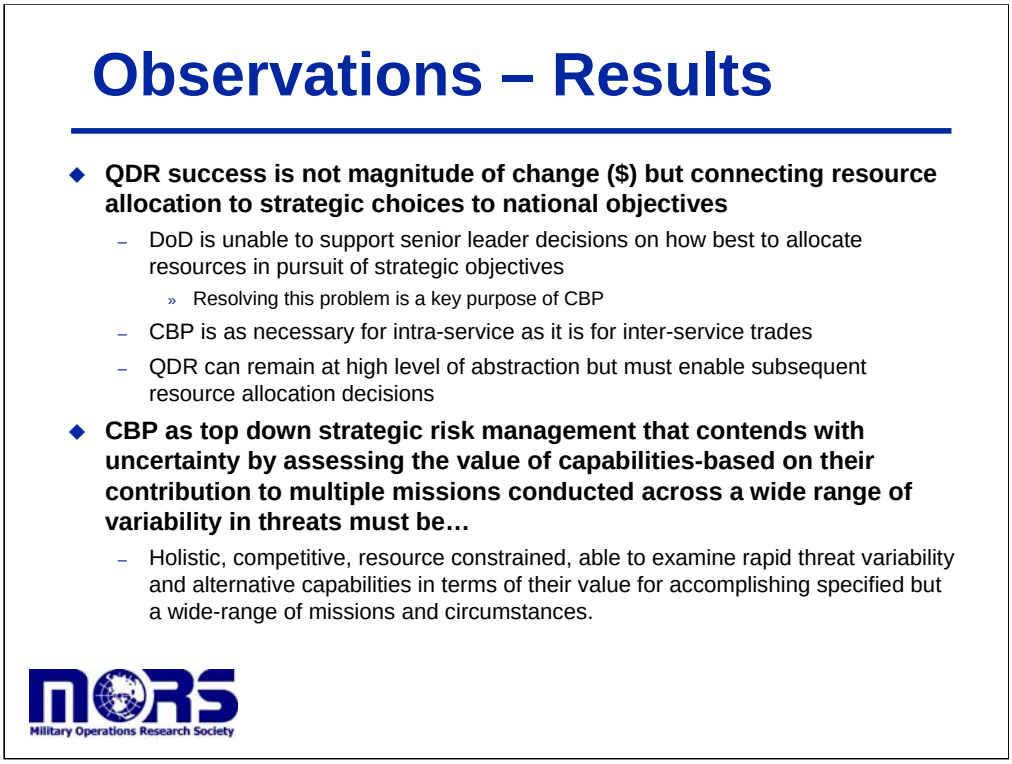
The working group's approach was straightforward. First, John Gordon presented an historical overview of previous QDRs and their results so the group could agree on the purpose and performance of previous QDRs.

Mike Fitzsimmons then presented a theoretical overview of CBP and QDR to identify and attempt a synthesis of some CBP attributes that would define successful use of CBP in support of future QDRs.

The group tested these historical and theoretical insights against the most recent QDR experience. Pat Kelly and Web Ewell explained CBP in the 2005 QDR by providing detailed explanations of how analysis did and did not support decision making. These insights led the working group to agree that CBP has not matured to the point where it can make much of a contribution to the QDR. In particular, as currently practiced, CBP does not link strategic choices to capabilities, identifying where to take risk and generate resources to reduce risk elsewhere.

Paul Davis then provided an illustrative framework for CBP and an example of recent CBP research. He demonstrated the PAT tool he used for the Director of MDA and USD(AT&L). The working group agreed that CBP is feasible and discussed the necessary prerequisites at some length, identifying those that would be most important for enabling CBP to assist the next QDR.

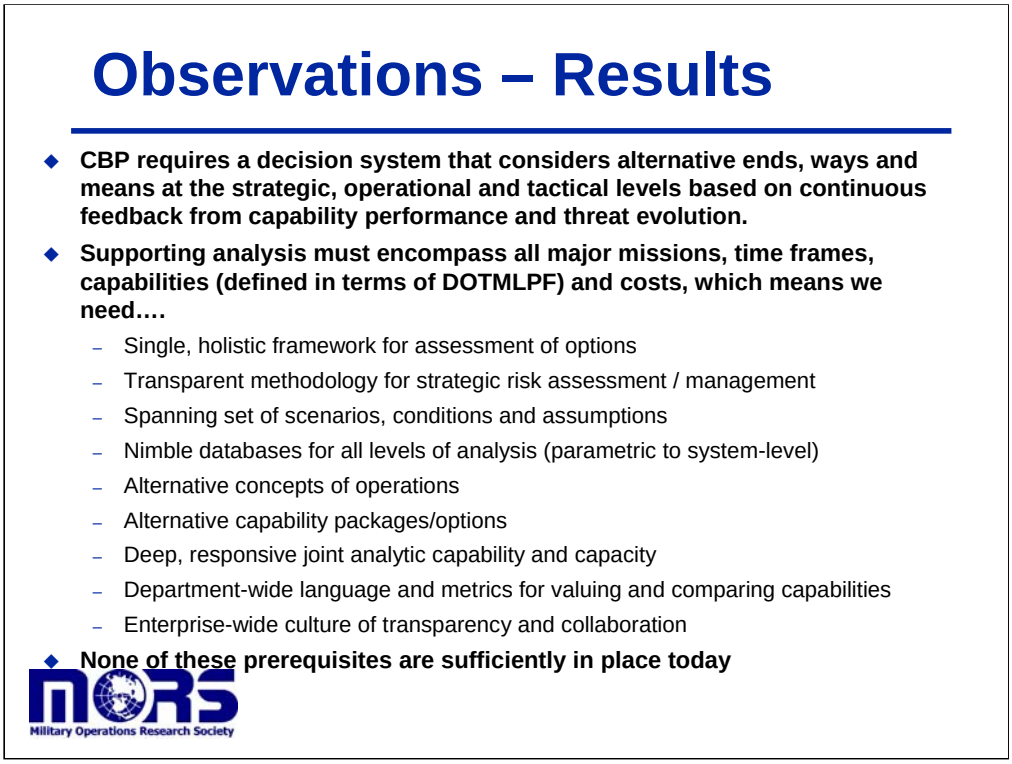
The group then discussed and agreed on improvements in the DoD's analytic base, decision making process, and senior leader decision making styles. The group did not agree on all aspects of how the DoD's organization should be modified in order to enable the other changes in approach to CBP.



Contrary to current critiques in the press, the working group agreed that the magnitude of programmatic change resulting from a QDR is not a *prima facie* case for or against success. It is understandable that Congress expected major change given the changes in the security environment, but it might be that the force structure draw down of the early 1990s and more recent investments (e.g. in materiel and SOF) got it about right and without major shifts in funding. At least it is arguable.

What all agreed upon, however, is that the logic train between strategic objectives and capabilities ought to be clear in a QDR, and no one believed that to be the case yet. Historical analysis suggested that the Services naturally would resist and do resist initiatives like CBP because they continued the post-World War II erosion of their prerogatives. However, the counterpoint was made that intra-Service decision making about capability investment would be served as well by CBP as by joint decision making. It was a question of enlightened self-interest and a decision process that would not punish honest assessments of where to take risks.

Two further qualifying observations were made by the group. First, Jim Thomason noted that while capabilities have to be linked to strategic priorities, this can be done at a high level of abstraction in the QDR and then more specific programmatic options can be built and evaluated later during a vigorous program development and review process. Whether to do so or not has been debated for decades. Second, it was noted that being holistic means considering near-term risk as well as future force capabilities, and that in fact it is difficult - if not impossible - to consider future force capability options without an adequate understanding of near-term baseline capabilities.

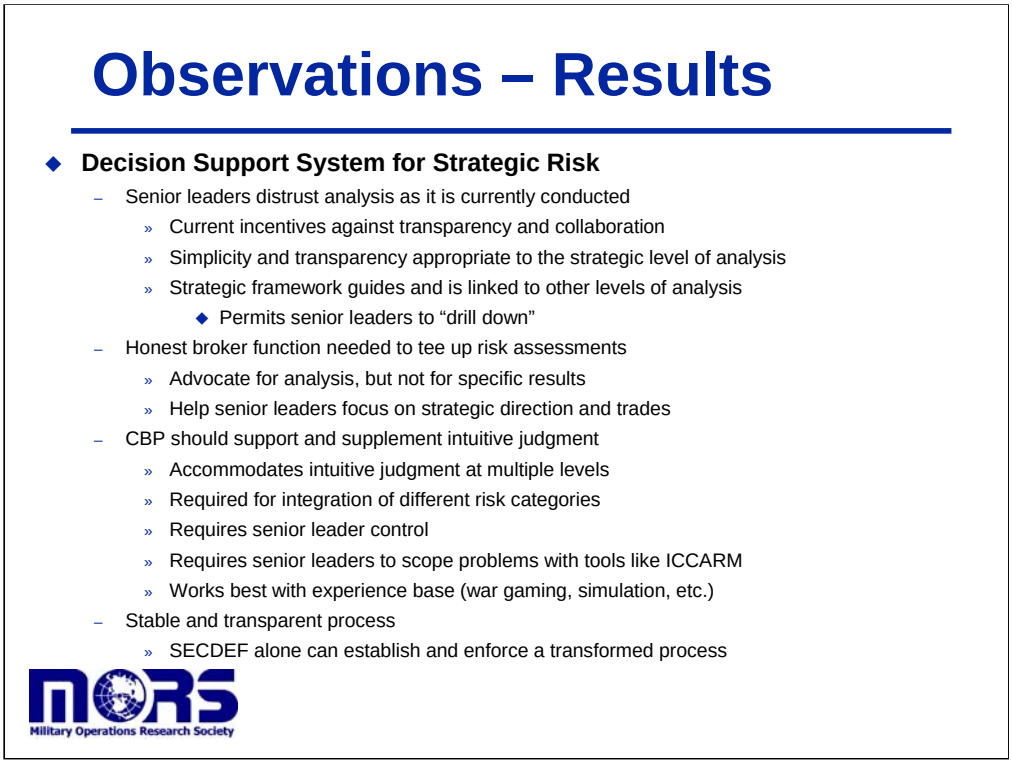


Holistic also generates additional attributes that the group discussed and agreed upon. Sometimes it is asserted that American interests (and thus usually ends or objectives) do not change, and that therefore we really only need to consider variations in means. On the contrary, it was pointed out that ends do vary, including for example the desired end-state in Iraq, precisely as the necessary ways and means for accomplishing alternative end-states are clarified. Hence CBP must be able to consider variations in ends, ways and means, and at the different levels of analysis.

The group also spent quite some time considering the analytic prerequisites for such robust analysis of alternatives and came up with the list on this slide. The main point of contention in this discussion was the extent to which scenarios could be limited to priority senior decision maker concerns and to a low level of resolution.

In the end it was agreed that senior leadership has to bound the threat with approved scenarios, but that analysts need to vary the threats in order to understand the consequences of artificially constraining the range of possible threat parameters. Practically stated, this means that analysts should investigate base cases first, and as many excursions as appropriate thereafter.

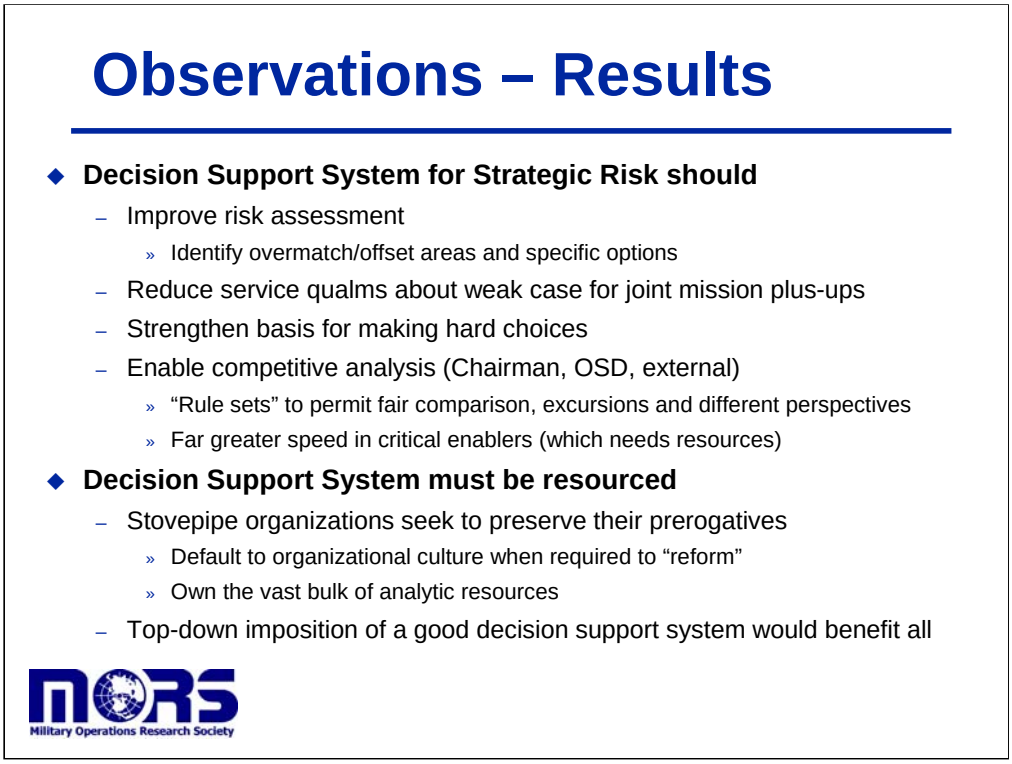
To facilitate such wide-ranging investigation of the full range of defense threats and problems, the group agreed that the preferred method should be to use exploration-capable models such as JICM or metamodels and parametric scoping analysis (such as the IDA ICCARM strategic risk assessment tool) that would highlight problems of special import. Then such problems could be investigated at much greater depth, which ultimately would reveal a chain of critical linkages between strategic choices and programmatic options.



The group agreed that the list of analytic prerequisites identified on the preceding slide had not been put in place yet for several reasons. First, there is a certain amount of senior leader distrust of analysis in DoD Today. Analysis as it is currently practiced in the Pentagon is used as much to advance particular component agendas as to illuminate. Competing analyses that reach diametrically opposed conclusions are not transparent — or especially useful — to decision makers, who often rightly suspect analysis is being used as a bureaucratic weapon.

Even well done analysis is sometimes used to pressure senior leaders to make decisions which, for reasons not considered in the analysis, their intuition tells them would be a mistake. Hence, it was agreed that to be useful to senior leaders, analysis must allow for qualitative judgment and senior leader intuition. The analysis must also be comparable, transparent and linked to lower levels of analysis in a rigorous fashion that allows senior leaders to "drill down" to investigate assumptions or inputs at a higher level of resolution.

It was agreed that for complex, careful analysis to support decision making on strategic risk options, the decision process has to be stable and transparent enough that the multiple bodies of expertise can be brought to bear in support of decision making in a disciplined manner. All agreed however, that the current process is anything but, and, moreover that only the Secretary can institutionalize major reforms to the current process.

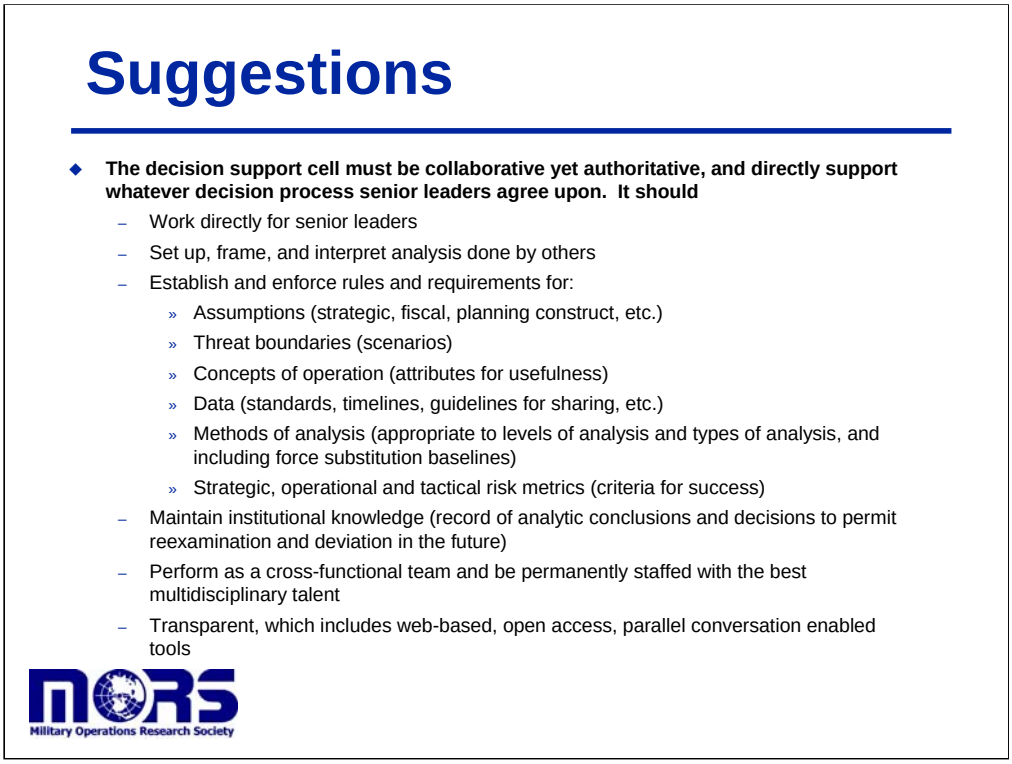


The cardinal test of any effort to reform the current decision support system to enable better strategic risk management would be its ability to identify areas for taking greater risks. Bureaucratically, it is far easier to identify areas and concrete options for reducing risk than it is to identify where additional risk might be accepted.

Another test of a reformed decision support system would be whether it easily allows alternative analyses to be compared in a way that elucidates rather than obscures. It is natural that different organizations will approach problems differently and therefore that their analyses may reach different conclusions. In order for senior leaders to benefit from insights from multiple sources, the bases for the analyses and why they reach different conclusions must be easily discernable or clearly identified.

It was noted that one reason the Services so fiercely resist efforts to transfer resources from Service-centric missions to "born-joint" missions is that they have far more confidence in their own internal assessments of how risk should be adjudicated. The Services own most of the analytic resources in the Pentagon; hence it is not surprising that they find joint assessments weak by comparison.

Therefore, in order to enable comparison of competing analyses and to permit better joint assessments of risk, the decision support system will need to be well resourced. This is not currently the case. It was also observed that in the end all would benefit from such a robust decision support system, as none can afford to invest in areas of marginal return compared to the full range of problems the organization must address.

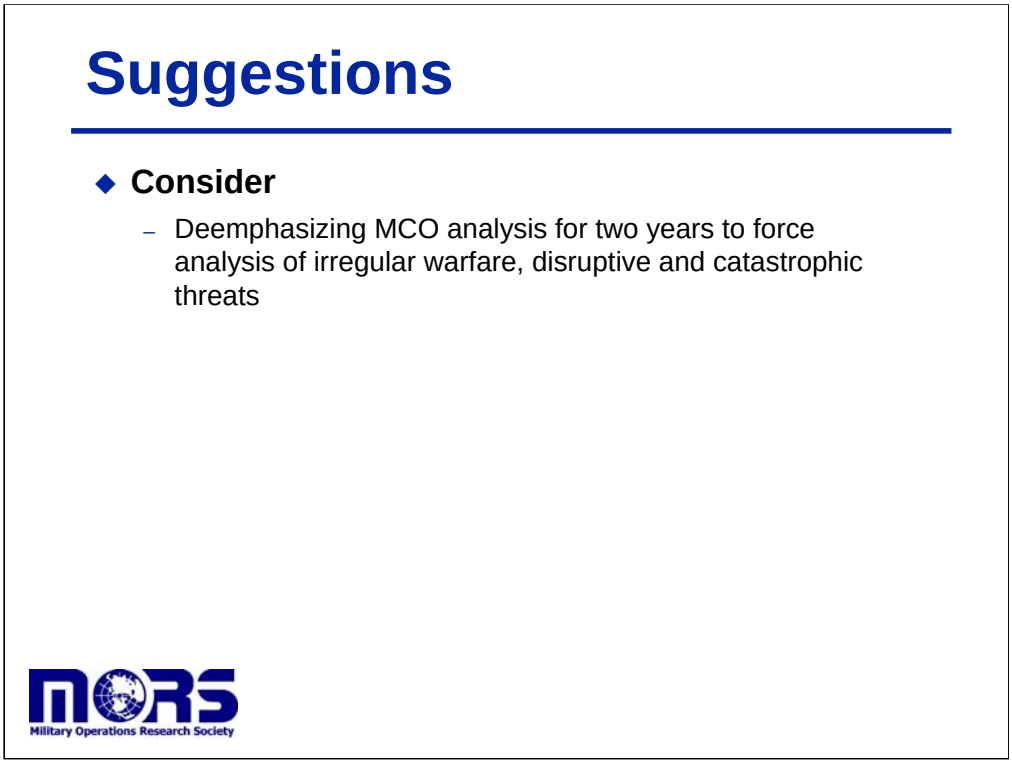


In short, the working group concluded that the Deputy Secretary's recent decision to authorize a decision support cell (DSC) was a good one. However, there was discussion on whether it would be redundant with PA&E and current efforts in support of the Analytic Agenda. The group agreed that the DSC should work directly for senior leaders because the senior leaders can protect the cell and ensure its objectivity, and because they are the primary beneficiaries of its efforts.

There was some difference of opinion about the precise role of the cell. It was agreed that the DSC should set up and frame an analysis so that it can be easily understood by senior leaders. Interpreting analysis done by others was a bit more controversial. Some thought that interpretation could easily slide over into advocacy that would undermine the DSC's honest broker role. Most agreed, however, that such interpretation is essential for explaining the limitations of analysis and why and how different analyses of the same issue could reach different conclusions.

Some also felt that the DSC should conduct analysis, at least in order to frame the broadest strategic choices confronting senior leaders. Others felt this was a slippery slope toward advocacy of analysis — which would undermine the DSC's credibility with all parties.

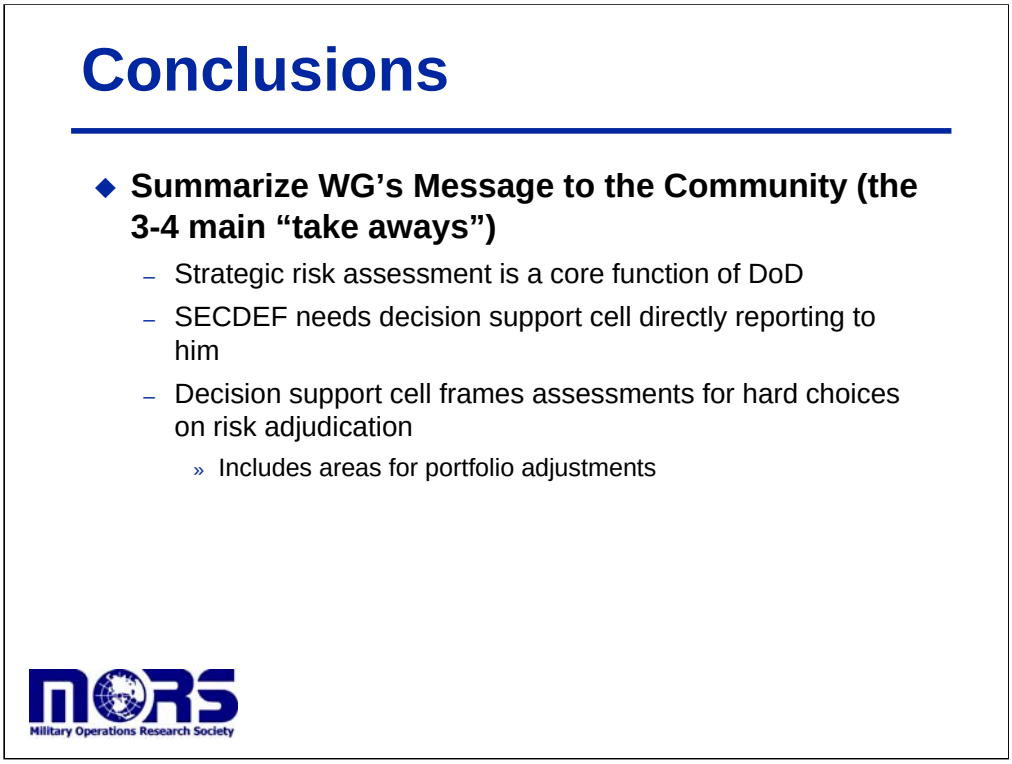
There was also much debate about how directive and authoritative the DSC should be with respect to enforcing standards. Some worried that good analysis would be unduly circumscribed by such boundaries and others thought that analysis would be useful to senior leaders only if it operated within such boundaries.



A suggestion that proved to be more controversial was the recommendation for a two-year moratorium on analysis of major combat operations. Given senior leader interest in irregular warfare and catastrophic threats, it was argued that the only way to get the analytic community to focus on these problem sets was to deny it the possibility of investigating major combat scenarios.

Two objections were raised to this recommendation. First, it was noted that areas for taking risk in major combat capabilities have to be conducted in order to generate offsets for investing in irregular warfare capabilities and countering catastrophic threats. Second, it was noted that senior leaders are also interested in disruptive threats such as technology breakthroughs that would allow an enemy to easily circumvent an established American asymmetric advantage. Both these objectives require analysis of major combat operations.

In the end, the group decided to recommend ***deemphasizing*** major combat analysis instead of recommending a complete moratorium.



The working group was discussing how to summarize its conclusions when time expired. The group reached the conclusions enumerated on the slide:

- Strategic risk assessment is a core function of the DoD;
- The SECDEF needs a DSC to enable this core function; and,
- That the cell must enable hard decisions about where to take risks in order to generate resources for drawing down risk elsewhere.

On a personal note, and believing he was drawing on conclusions from previous slides, the chairman of the working group observed that the working group's recommendations would not succeed without some substantial changes in our current course.

In particular, he noted that such recommendations require:

- Leadership directly from the SECDEF, whereas currently this responsibility has been delegated to at least one and most likely two or more levels down.
- That the DSC be configured above all else as an honest broker, whereas currently it has been delegated to an existing organization that is perceived as a participant with vested interests.
- Major resources, whereas the decision support system for CBP has not received a significant increase in resources.

It should be noted, however, that some members strongly object to the implication that PA&E has vested interests and cannot function as the DSC. On the contrary, they insist that PA&E can and does fulfill this role at the present time.

MORS Workshop Outbrief:

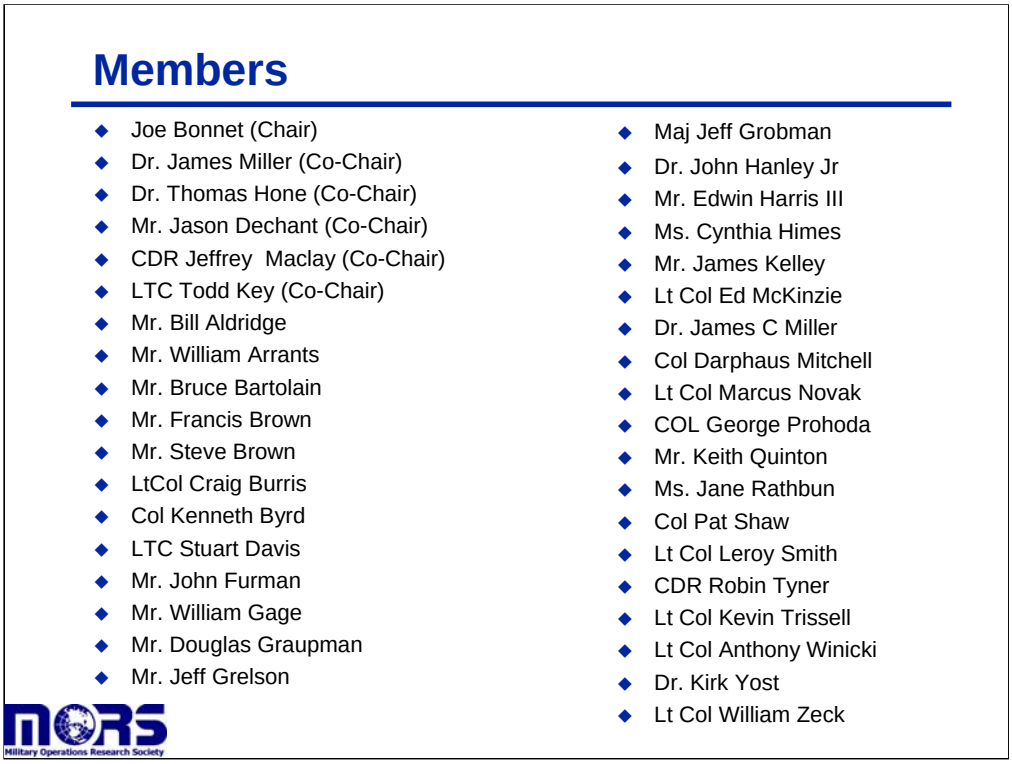
Capabilities-Based Planning II - The Road Ahead

Working Group 2 Report

Improving the CBP Process: Strategy to Joint Concepts to JCIDS

Chair: Joe Bonnet
Co-Chairs: Dr. James Miller, Dr. Thomas Hone, Mr. Jason Dechant, CDR Jeffrey Maclay and LTC Todd Key

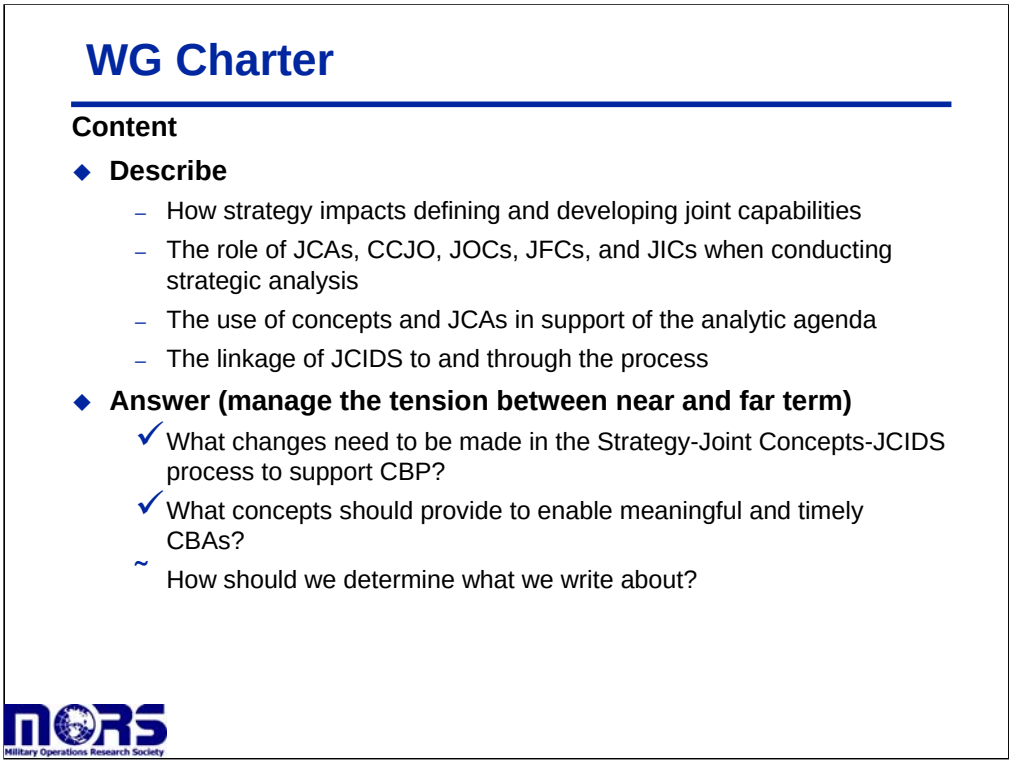
6 April 2007 – Alexandria, VA



These are the denizens of the Tower of Babel. We have the masons, plumbers, and electricians; we just need an architect.

It was with malice of forethought that we invited these participants; these are the people who have actually done the work; they have actually developed and written strategy, concepts and Blue Force CONOPS. These are the people who work with the JCAs on a day-to-day basis.

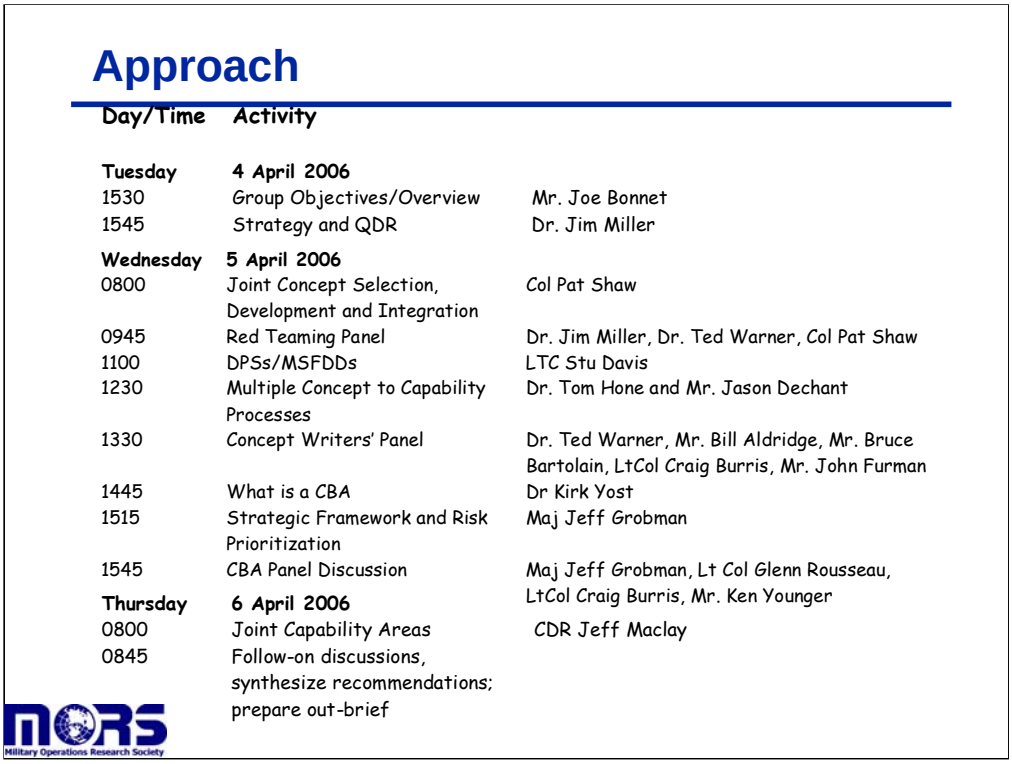
A special thanks to Dr Kirk Yost and Maj Jeff Grobman for coming over from running their own work group to give us their insights on CBAs and prioritizing scenarios across strategic risk frameworks.



This was our WG charter. As you can see, the scope was broad enough to challenge our ability to get through everything in the day and a half that we had.

On the bottom you can see our self-assessment at how well we think our output answered the questions.

We were pretty satisfied with the first two areas, and despite good discussions on the last, we believe more needs to be done on this.

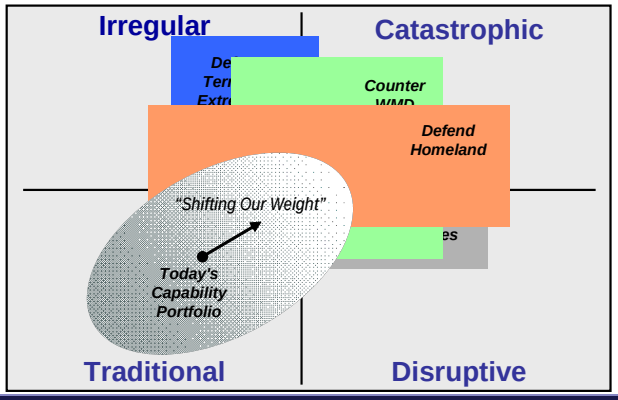


This was our approach and agenda. If one measure of time management is how many adjustments to the agenda were made, then the subject/substance discussion versus the initial time allotted matrix indicates we could have gainfully used another full day or even an entire special meeting.

Concepts Can Help "Shift Our Weight"

- Ongoing operations for the WOT, Iraq and Afghanistan are driving requirements in the Irregular quadrant (concepts might add some)
- Concepts for Countering WMD, HD and Shaping Choices needed

QDR Objective – Shift in Focus

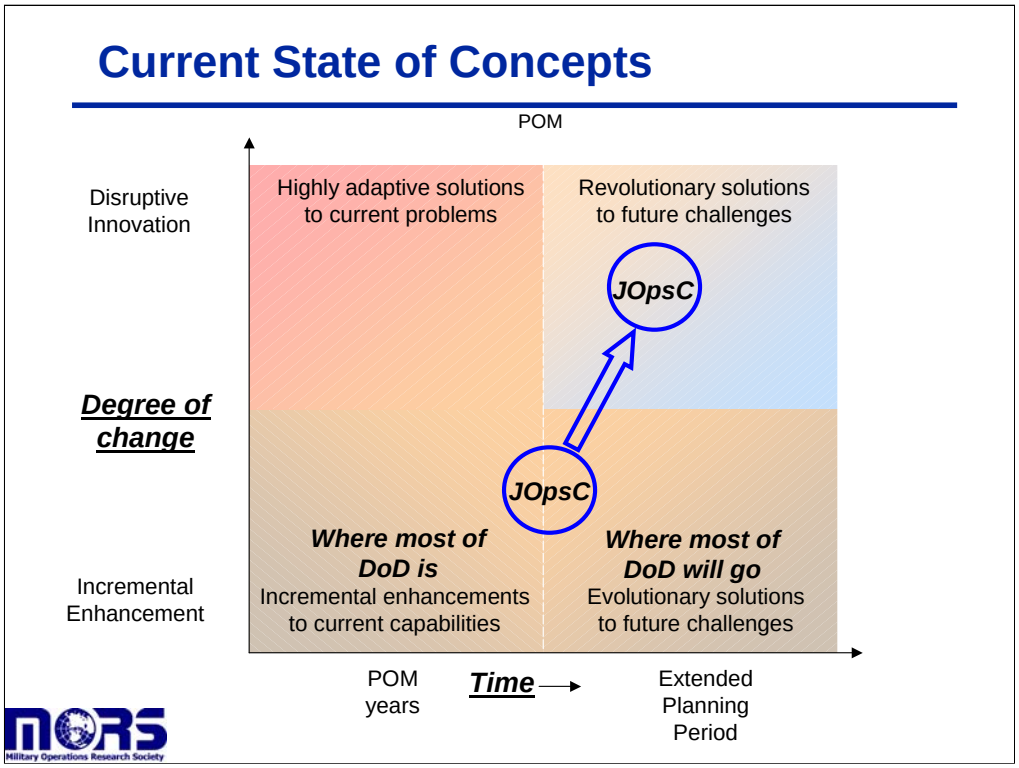


Continuing the reorientation of military capabilities and implementing enterprise-wide reforms to ensure structures and process support the President and the warfighter

5

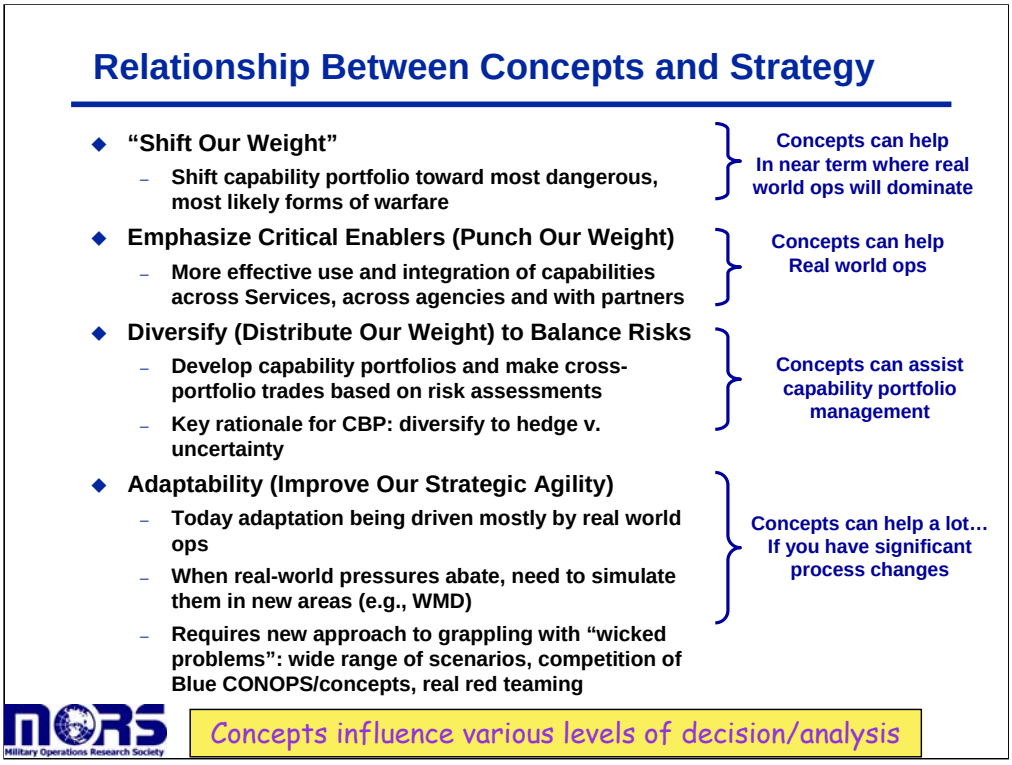
MORS Military Operations Research Society

You saw this slide in Mr. Krieg's presentation. The central idea is that the Department's capability "center of gravity" needs to shift from the core of the Traditional Challenge area to a more "centered" position. This would better balance requirements across all four of the security challenge areas – Traditional, Irregular, Catastrophic and Disruptive. These concepts can have an essential role in helping us shift that balance.

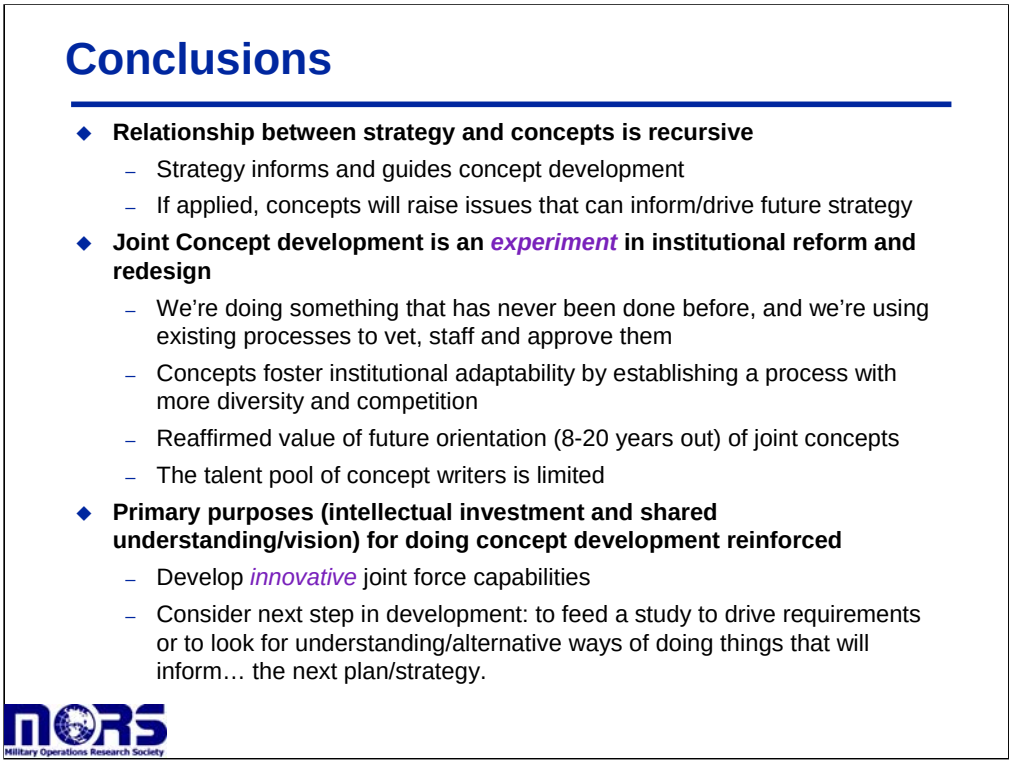


The important thing to take away from this slide is that the original intent of concept development was to identify innovative and different ways and capabilities that would help transform the future joint force. Concepts delivered to date can generally be characterized as "today on steroids." Recent CJCS guidance indicates that our notion of transformation has evolved into something more in line with continuous evolution and incremental improvement.

In some cases the concepts presented (or when completed) will represent the collective wisdom of the joint community. For example, Irregular Warfare is an important and relevant subject. A concept of IW that helps us better understand the nature of the IW problem and offers ideas on how to solve it would be useful and valuable. Does anyone believe there is sufficient understanding of this subject to offer a viable alternative approach to IW?

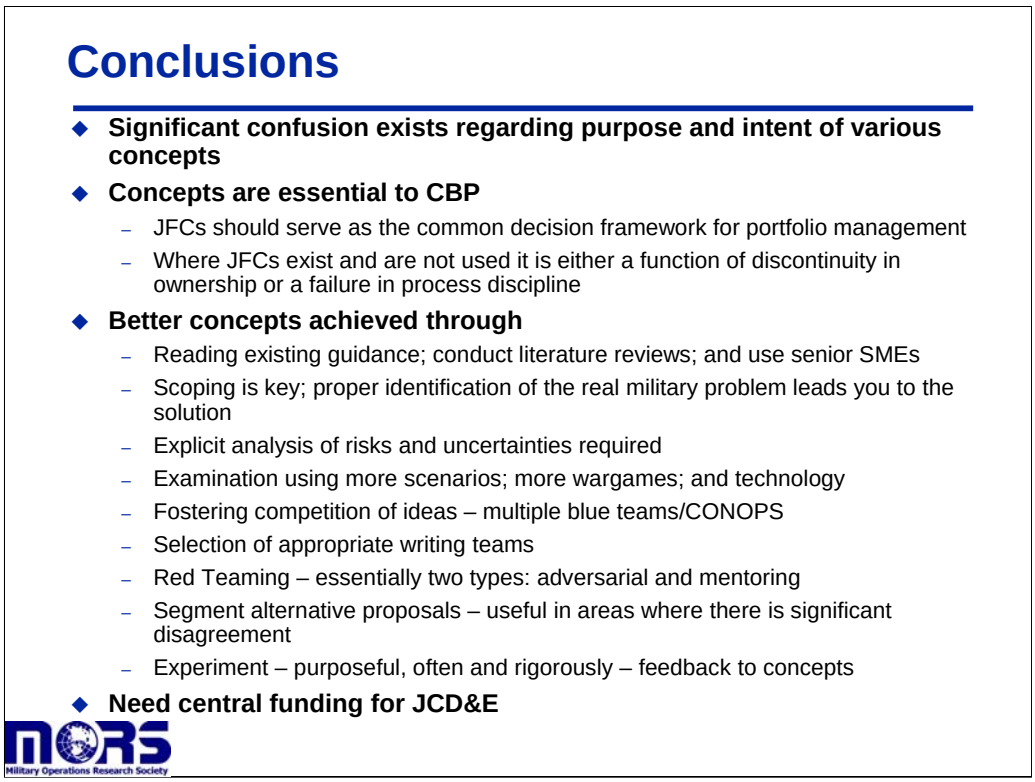


The role and value of concepts in helping to better understand a problem, forge a shared vision, or drive force development varies. But in some areas, not only can they help, they can help a lot.



This slide indicates that the relationship between strategy and concepts is recursive. That is, it should be true. Frankly, we had 'is', 'should', 'could', and 'ideally' in there before we settled on is.

We are living in an experiment. Joint Concept Development is an experiment in institutional reform and redesign. One of our more significant process challenges is that joint concept development has never been done before, and we're using existing processes to vet, staff, and approve them. The process will either have to evolve or other processes will have to replace them if this is going to continue.



There is significant confusion regarding the role and intent of concepts generally and particularly in understanding the differences between JOCs, JFCs, and JICs.

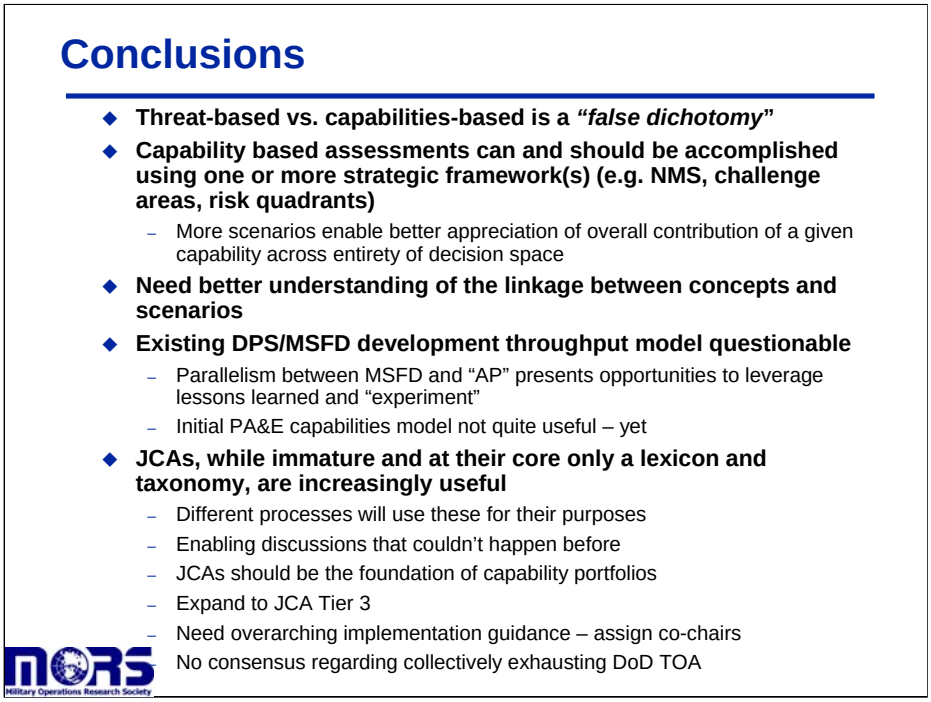
We can improve – we can start by actually reading the existing guidance in CJCSIs 3010 and 3170. Strategic guidance NSS, NMS, NDS, CPG, QDR, UCP, and SPG. Do literature searches. There is a rich body of work on a variety of relevant joint subjects such as supporting distributed operations and Joint C2.

Continuously it has been said that CBP and concepts specifically require examination through a broader set of scenarios. Because a concept fundamentally provides a generic solution to a generic problem, it is only through scenarios that you get context; and through context you gain an appreciation for what the implications are across a robust decision space.

Careful selection of the writing team is essential. The talent pool of concept writers is limited. The pool of future, joint concept writers is very small. The days of amateurism is over. We need to raise the bar for concept writing significantly.

The problem with so much of concept development is that proposing a central idea (one solution) to fixing a problem could imply that approval of that concept could threaten alternative visions or approaches to the problem. The fear factor all too often results in the least common denominator products. What concepts should do is welcome alternative ideas, partition them, and use them for focusing follow-on experimentation and assessment.

Although USJFCOM is the lead within DoD for JCD&E, and are funded for it, there is a lot of JCD and some experimentation done elsewhere. Resourcing these efforts over time has been and continues to be an issue. Essentially, if you are selected to write a joint concept, you get the privilege of paying for that effort as well. Centralizing funding will help incentivize behavior and could foster increased competition of ideas.



Threat-based versus capabilities-based is a false dichotomy. While a capability based framework focuses across a broad array of potential scenarios rather than focusing on one in particular, every scenario has context. Scenario context includes capabilities that potential adversaries, neighbors and potential coalition members and allies have that must be considered.

Every CBA needs to consider one or more strategic contexts as the point of departure for embarking on a CBA. Using more scenarios provides a more robust picture of the decision space because some capabilities are absolutely essential and critical in one or more scenarios, but are often less critical or even irrelevant in others. The key is to get a holistic picture of a capabilities contribution across the decision space.

The third bullet has two aspects. The first regards the aforementioned need to examine a concept and capabilities across a broad set of scenarios and in different contexts. The second point highlighted by writers and CBAers is the need to improve the mechanism for gaining access to these scenarios; DPS and attendant MSFDs.

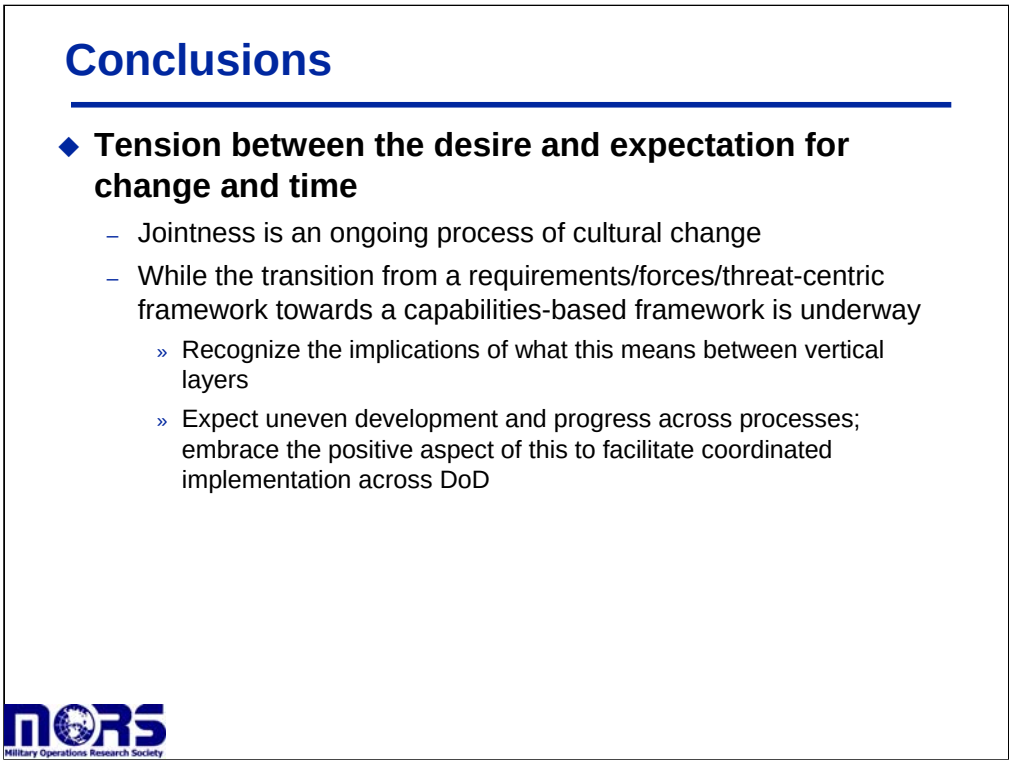
Producing DPS/MSFDs on a 37 week cycle is untenable if we go from today's through-put rate to generating 30 or so new MSFDs quickly. Perhaps we could build the MSFDs in variable detail such OPLANS are now being built in the Adaptive Planning process. Alternatively, we could agree on a manageable workload management solution, i.e. build in detail those intended to support this year's OA study or to fill a critical gap in the analytic agenda.

There is a clear process linkage between what we do in developing MSFDs and what Tim Hoffman's Adaptive Planning community does in operational planning. We need to work together to share lessons and to continue to implement a capabilities approach across processes in a mutually supporting and coherent manner.

If the degree by which JCAs are fomenting of hate and discontent is an indicator of their potential value, and a threat to existing walls, then beer has nothing to fear but the poncho liner and bread should be looking over its shoulder.

JCAs have the real potential to change how decisions are made. They have already changed and enabled discussions that never could have occurred before. Linking program elements to major defense acquisition programs into FCB bins in an authoritative and transparent manner across the DoD has now been done and the insights are illuminating and interesting.

There is no consensus across the MORS WGs nor was there consensus within our WG over the need for implementation plan/instructions. However, within our WG, the overwhelming sense was that an implementation plan was needed now. Prototyping is a good idea, and the past QDR Institutional Reform and Governance (IR&G) roadmap is going to "prototype" capability portfolio management in C2, BA, Net-Centric Operations, and Joint Logistics. If we're serious about doing this, assign co-chairs the responsibility and let's get on with the experiment.

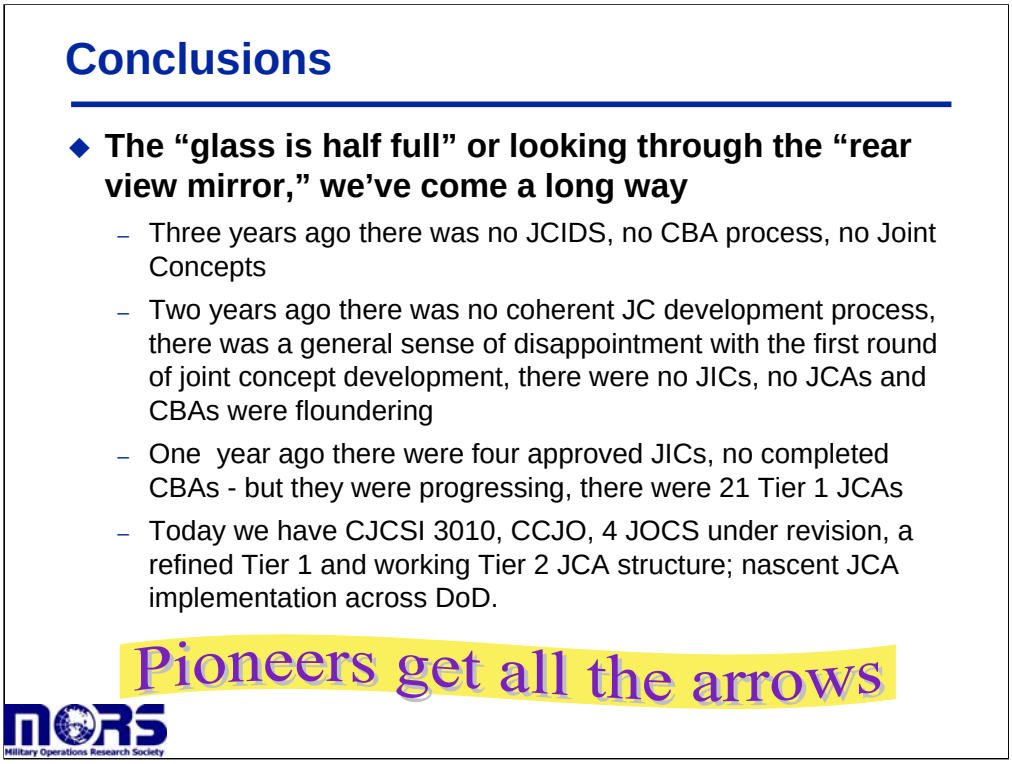


It's been over 20 years since Goldwater-Nichols. There is no comparison today between the capabilities and understanding of the joint force culture today and what existed 20 years ago. The expectations and norms today weren't even envisioned at that time. It's like asking someone from 1930 to describe the world that existed in 1950, or someone in 1980 to describe the security environment of 2000.

So too, are we in a period of transition from a force/threat centric framework towards a capabilities-based framework. This is every bit as much of a cultural shift as it is a paradigm shift.

There is a significant implication in what is required to provide relevant analytic support to senior decision makers. That implication translates to a lot of work and due diligence in order to enable a senior leader to drill down and ask a question and receive an accurate and credible answer — such that it engenders sufficient confidence in a decision already taken or to enable leaders to make a future decision with confidence that the necessary analytic underpinning is in place.

Expect and accept that different processes and activities will use JCAs differently, and in ways that are meaningful and valuable to them. And that's OK. The key is that JCAs enable disparate groups and processes to link with each other and have a coherent, meaningful conversation and that's already happened as you heard from Ms. Terry Gerton's (OSD/PA&E) presentation.



Sometimes transformation and just plain progress is easier seen through the rear-view mirror. While much remains to be done, we've come a long way in three years.

Three years ago, there were no JCAs, no joint concepts, no CBA process — there are some here today who think that was a better world.

Two years ago there was no coherent Joint Concept development process, there was general sense of disappointment with the output from the first round of joint concept development, there were no JICs, no JCAs and the two CBAs in-progress were floundering

One year ago there were four approved JICs, no completed CBAs, but they were progressing, and SECDEF had approved 21 Tier 1 JCAs.

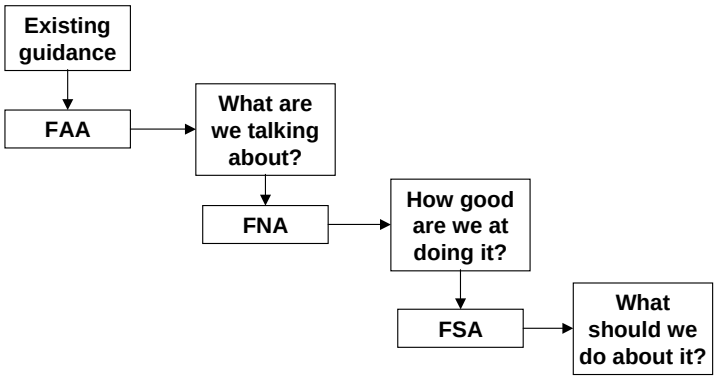
Today we have CJCSI 3010, CCJO, 4 JOCS under a second revision, a refined Tier 1 and working Tier 2 JCA structure; nascent JCA implementation across DOD and are getting ready to begin the next round of JFC revision.

Back-up

JCAs as part of the QDR Process

ODR Capability Portfolios	Joint Capability Areas
Intelligence, Reconnaissance, Surveillance	Joint Battlespace Awareness
Joint C2	Joint C2
Joint Net-Centric Operations	Net-centric Operations
Tailored Deterrence/New Triad	Joint Global Deterrence
Joint Mobility	Joint Access and Access Denial Operations
Joint Ground Forces	Joint Land Operations
Joint Maritime Capabilities	Joint Maritime/Littoral Operations
Joint Air Capabilities	Joint Air Operations
Combating WMD	Joint Protection
Special Operations Forces	Special Operations & Irregular Operations
Joint Space Operations	Space Operations
Other Areas Noted in QDR	
Logistics and Health Mgmt	Logistics
Strategic Communications	Joint Public Affairs and Joint Info Ops
Interagency Operations	Joint Interagency IGO/NGO
Work w Coalition Partners/Build Capacity	Joint Shaping
Other	
[part of JC2 and Human Capital Strategy]	Joint Force Management
[Central to Force Planning Construct]	Joint Force Generation
[1 of 4 key challenges]	Homeland Defense, Civil Support
["Nation at War," FPC]	Stability Operations
[Irregular Warfare roadmap]	SO and Irregular Ops

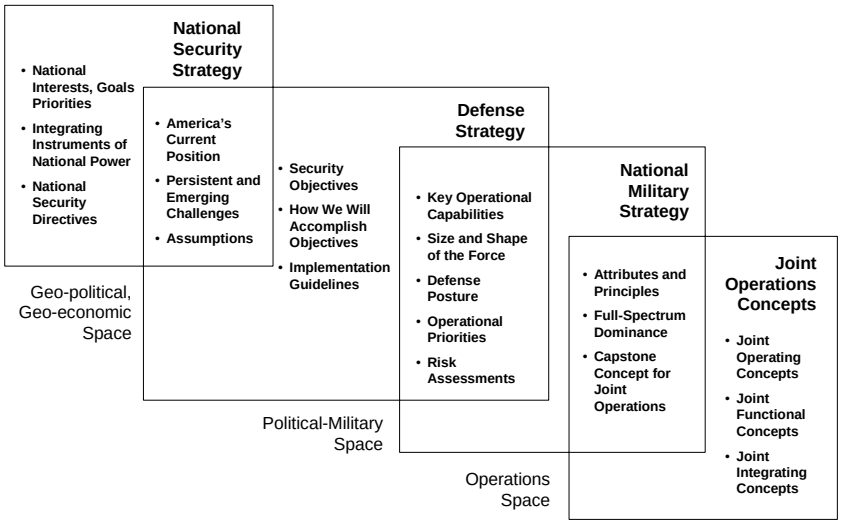
What Is a CBA?


Existing guidance
FAA
What are we talking about?
FNA
How good are we at doing it?
FSA
What should we do about it?

Types of CBAs

- Based on an actual operational shortcoming
- Based on a perceived future need
- Provide a unified look at a mission area
- Provide a joint examination of a proposed operational concept
- Provide a broad examination of a functional area

Relevant Strategic Guidance



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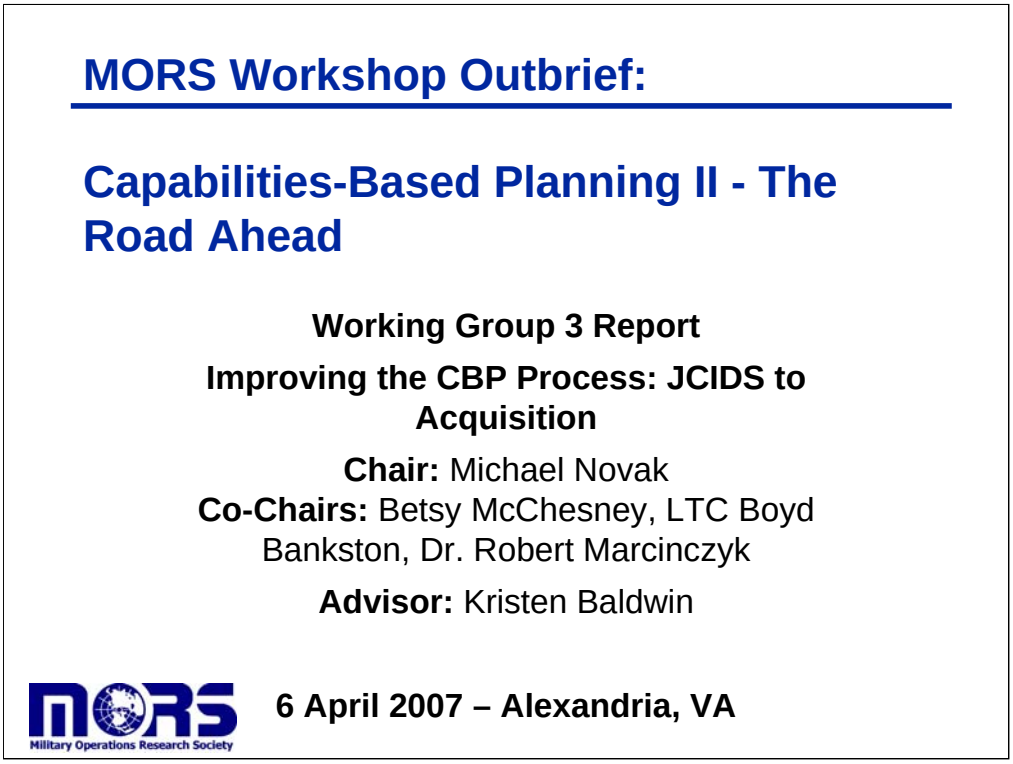

Working Group 3, Improving the CBP Process: JCIDS to Acquisition, was chaired by Mr. Michael Novak, OUSD(AT&L), Defense Systems, Joint Force Application. His co-chairs included Ms. Betsy McChesney, and LTC Boyd Bankston of the Joint Staff, J-8, and Dr. Robert Marcinczyk of OSD PA&E. The working group's advisor was Mrs. Kristen Baldwin, OUSD(AT&L) Defense Systems, who chaired the previous CBP I workshop workgroup on Acquisition in October, 2004.

The Working Group members included a number of OSD staff personnel, as well as representatives from the Joint Staff, Services, Labs and FFRDC, Military Academy, GAO and an ally from Canada. Although current COCOM representatives were not present, personnel who had previously served on COCOM staffs did participate.

Members

Allen, Mr Charles III	OUSD, AT&L (Contractor)	**Lewis, Mr Harry**	SONEX Enterprises Inc.
Auletta, Mr Joseph F.	Office of Aerospace Studies	**Lienard, Mr Ben**	BAE Systems
Baldwin, Mrs Kristen J.	OUSD(AT&L)	**Locke, Mr Michael P.**	CAS, Inc
Bankston, LTC James Boyd	CMR 480	**Lord, Mr Eric H.**	HQ AF/A9RC
Bimba, Mr Charles	CSC (JTAMDO)	**Marcinczyk, Dr Robert**	OSD PA&E
Calhoun, Mr Todd R.	Marine Corps Systems Cmd	**Marks, Mr Adam N.**	Booz Allen Hamilton
Carr, CAPT James M.	USN OPNAV N81	**Martin, Jr, Capt Richard Curra**	Marine Corps Systems Cmd
Cerniglia-Mosher, Dr Mary An	JCS J4	**Masson, CDR Kenneth M**	USN OPNAV N81
Clagett, Mr. David C.	Joint Rapid Acquisition Cell	**McChesney, Mrs Betsy**	The Joint Staff, J-8
Cribb, Ms Nancy Thi-Balsitis	Booz Allen Hamilton	**McFadden, LTC Willie J. II**	United States Military Academy
Dahmann, Dr Judith	MITRE	**Novak, Mr Michael J**	OUSD (AT&L)/DS/SMI
Dalton, Mr Kelly H.	ASC Capabilities Planning Dir	**Pontius, Mr Ronald W.**	DAU
Dudley, Mr Michael R.	HQ AFMC/A5CC	**Portigue, Mr Robert J Jr**	MITRE
Escaravage, Mr Jason	Booz Allen Hamilton	**Quenneville, Mr Albert J**	ESC A2SG/XR
Fillingim, Mr Pat	ASC/XRST	**Rodgers, Mr Philip D.**	OUSD(AT&L) A&RA/RA
Geier, Mr Paul	Booz Allen Hamilton	**Sadauskas, Mr Leonard**	ODASD (CIO) CP/O
Glennie, Mr Woodworth Page	Office Asst Secretary, Navy	**Soules, Mr Stephen M**	Booz Allen Hamilton
Graupman, Mr Douglas	HQ AF/A5R-J	**Tindall, Mr John W**	MITRE
Gwozdz, Mr Lawrence	OUSD(AT&L) ARA/AM	**Warner, Dr Edward L III**	Booz Allen Hamilton
Hales, Mr Douglas R.	Greenley & Associates	**Webb, Mr Michael J**	MITRE
Hawthorne, Mr Everett (Skip)	OUSD(AT&L) DPAP	**Willette, Capt Scott E**	EBAT, PROG, MarCorSysCom
Himes, Ms Cindy	HQ AFMC/A5CE	**Woodaman, Maj Ronald Frede**	Marine Corps Systems Cmd
Kneece, Dr Roland Royce Jr	IDA	**Woodward, Ms Susan K**	US GAO
Koretsky, Mr Geoffrey M.	IDA	**Wright, Ms Robin J.**	Alion Science and Technology
Lesser, Mr Harry	Lockheed Martin	**Younger, Mr Kenneth**	JTAMDO J-8

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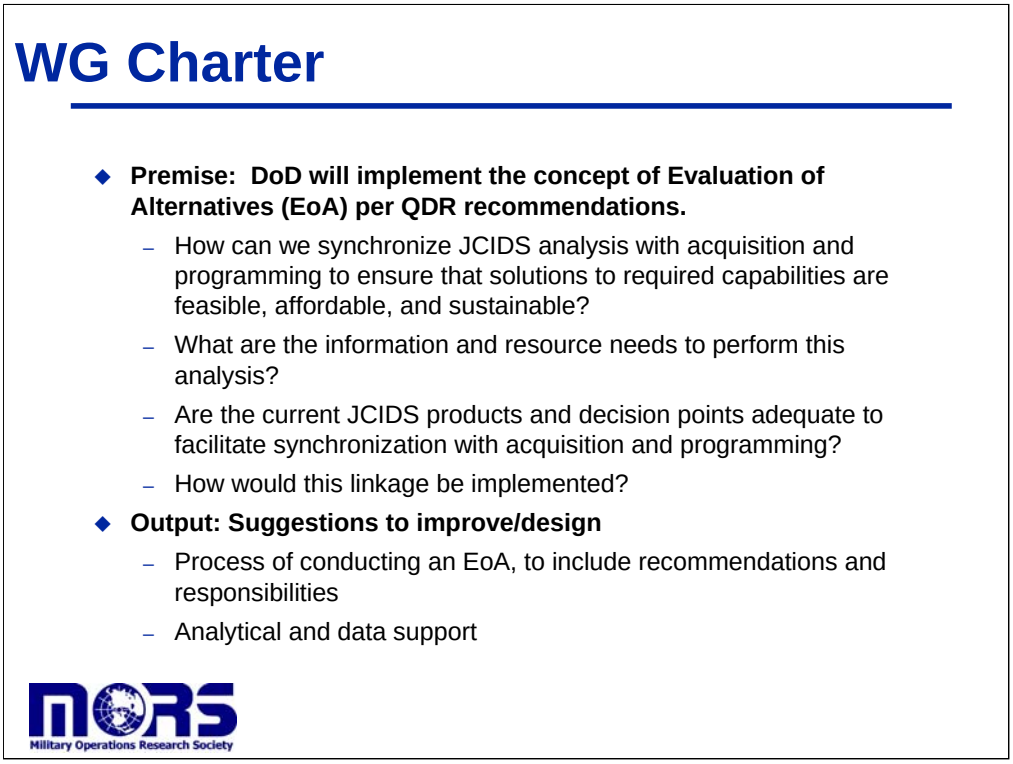
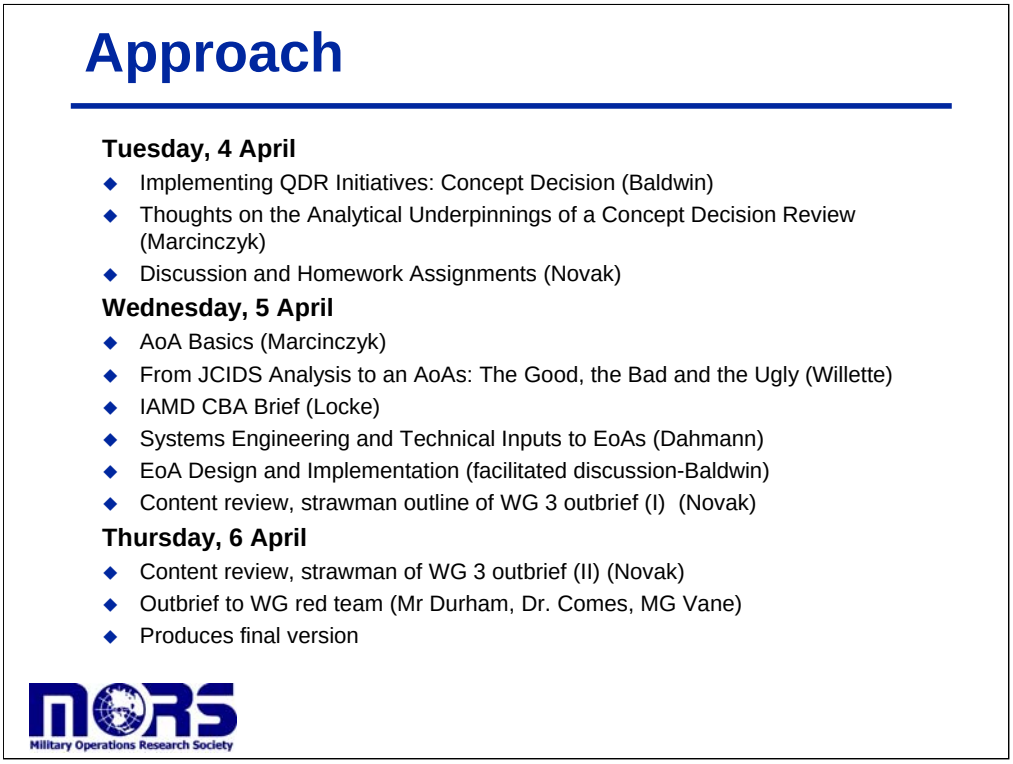
Our working group was comprised of 50 people, a good mix of the requirements, acquisition and resource communities representing the Services, Joint Staff and OSD perspectives. Approximately 50% of our group were trained in operations research.



Based on the Quadrennial Defense Review (QDR) institutional reform and governance recommendations, one of the strategic and tactical acquisition initiatives to improve the DoD's support to the joint warfighter includes developing a Concept Decision process that implements the concept of an Evaluation of Alternatives (EoA). The Concept Decision combines the Analysis of Alternatives (AoA) and the Functional Solutions Analysis (FSA) into an EoA that follows the issuance of the Joint Capabilities Document (JCD) and precedes a Concept Decision Review (CDR). The EoA concept supports the DoD's initiative for senior leaders to make informed investment decisions through better collaboration among the joint warfighter, acquisition, and resource communities; and, that these tough decisions be made to ensure that joint needs are adequately addressed, within fiscal constraints, and at an agreed upon degree of risk.

Our WG charter was to determine the process of conducting an EoA and identify accompanying analytical and data support. This includes changes to our current processes; what resources and information are required to do an EoA; how to synchronize the current JCIDS analysis with an AoA; and finally, how can we implement the EoA in a way to ensure our chosen solutions reflect required capabilities and are feasible, affordable and sustainable.



Our overall working group approach was to first establish a baseline of knowledge on the JCIDS, AoA, and acquisition Concept Decision processes by sending out read aheads and homework (our major tasks) to the working group members prior to our initial meeting. This was followed by introducing and discussing the new proposed Concept Decision process, and its underlying analytical underpinnings, during our initial meeting so that the working group could absorb this new information and be prepared for the following day's meeting. During our first full work day, we first described the AoA basics and EoA differences, and discussed previous JCIDS analysis efforts from the Services' perspective. The Integrated Air and Missile Defense (IAMD) Capabilities Based Assessment is ongoing, with the JCD in staffing for JS approval. This IAMD CBA will have 3 FSAs conducted, one by each Service, and will have an opportunity to go thru the new EoA process as one of two Concept Decision pilots. Systems Engineering inputs for EoAs were also discussed and compared to what is currently being done.

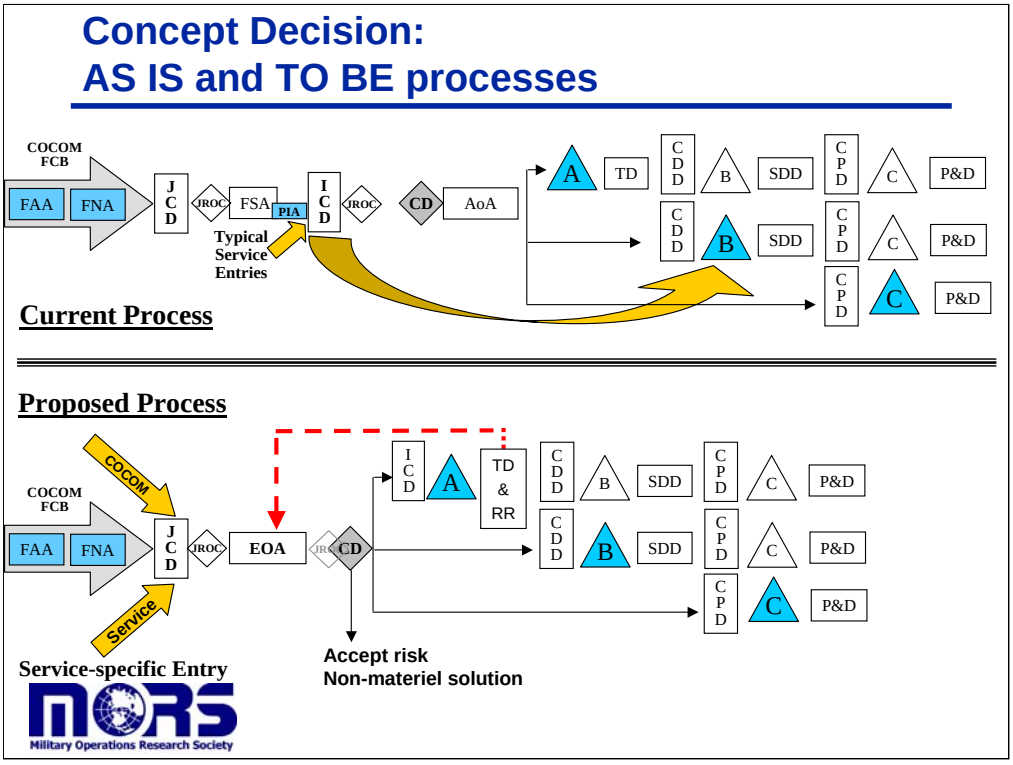
We then proceeded to address our main EoA tasks and developed our strawman outbrief. We briefed our Red Team of Mr. Durham, AT&L Joint Force Application, Dr Comes, OSD PA&E C4, Information Programs, and MG Vane, JS J-8, who provided recommendations, questions, and comments on our efforts, which have been incorporated in the following slides.

JCIDS – Acquisition: Challenges

- **All three decision processes (requirements, acquisition and programming) need to inform and mutually support the decision to invest or divest**
- **Analysis must be joint, capabilities/portfolio based, and reflect a strategic perspective**
- **The need and the investment strategy must be validated through concept decision review before proceeding with the solution(s)**
- **Analysis must be timely, sufficient to characterize a decision space, and identify representative approaches, resource options, and risks**

As we determined our objectives and major tasks, we identified those key JCIDS to Acquisition challenges as listed here:

1. In order to support senior leaders in making Concept Decisions, the 3 communities of Requirements, Acquisition, and Programming, must provide the necessary information and mutually support the recommended decision to the senior leaders, e.g. whether it is to invest in a materiel solution or divest and proceed with other DOTMLPF solutions. The proposed Concept Decision process will allow these 3 communities to apply their current analysis techniques, melded with other techniques, to provide a more robust discussion of alternatives and collaboration.
2. In describing the analysis, there are three prerequisites: 1) Must be joint; 2) capabilities/portfolios based; and, 3) have a strategic perspective. The analysis must consider potential alternatives for transferring capabilities to a joint force. It must be capabilities/portfolio based vice focused on specific programs in order to provide a capabilities-based framework requested by senior leaders. The analysis must be done with a strategic perspective that considers strategic guidance and both materiel and non-materiel aspects of the capabilities portfolio.
3. Part of the outcome from a Concept Decision review is the validation of the capability need and the investment strategy that was developed as the way ahead to establish investment priorities. The intent is to ensure that once the acquisition process begins that there is sufficient rigor and a strong rationale to support the go ahead to a milestone decision before extensive resources and effort have been committed to a particular materiel solution that later falls short of expectations. The investment strategy provides both investment and divestiture recommendations, that indicate the capabilities where the DoD can take risk and offset funds, or divest in order to fund the desired enhancements.
4. Sufficient analysis to define the investment trade space is the key. The goal is to avoid lengthy and costly analysis that does not improve the quality of the decision regarding options for addressing particular capability gap(s) in a mission area. The analysis must provide sufficient information for senior leaders to make informed decisions in considering the various approaches, resource options, and associated risks. Identified risks include the typical military and/or operational, but should also include technology and integration risks as a minimum.



The **current process** allows programs to enter at any Milestone and devotes a great amount of time and resources toward a milestone decision before the DoD, as a whole, determines that this is an area that warrants future investment.

The QDR recommended the concept of Evaluation of Alternatives (EoA), and this WG was chartered to determine a process of conducting an EoA. The **proposed process** attempts to take a holistic or corporate view early on in the context of capability portfolios, vice the current serial process that is program focused. This proposal integrate the requirements, acquisition, and programming processes, in concert with the Services, in order to make key investment decisions, increase stakeholders' buy-in/commitment, and create acquisition stability. The key change is to combine the FSA and AoA plus other analytical considerations into an EoA. The intent is to conduct an EoA that analyzes both non-material and material potential solutions to address the capability gaps, and to serve as an input to the CD Review.

Working Group Outputs

- Inputs/Outputs for the EoA
- EoA Perspectives – Decision Needs
- Guidance
- Process
- Methodology
- Resources
- Recommended Next Steps

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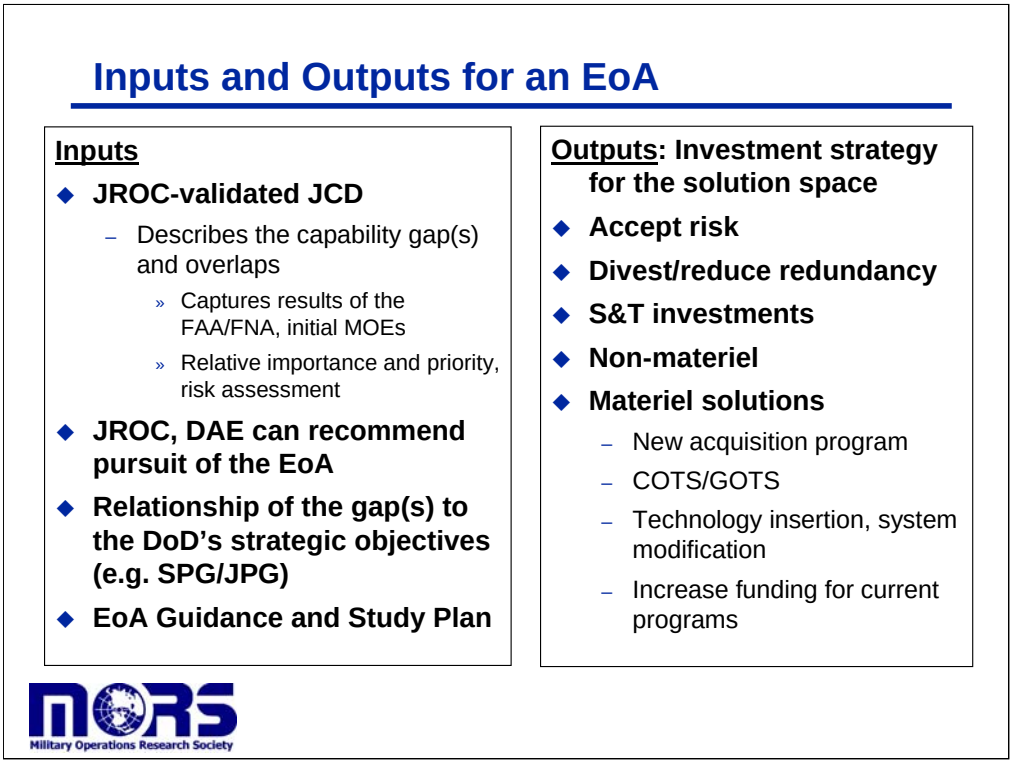
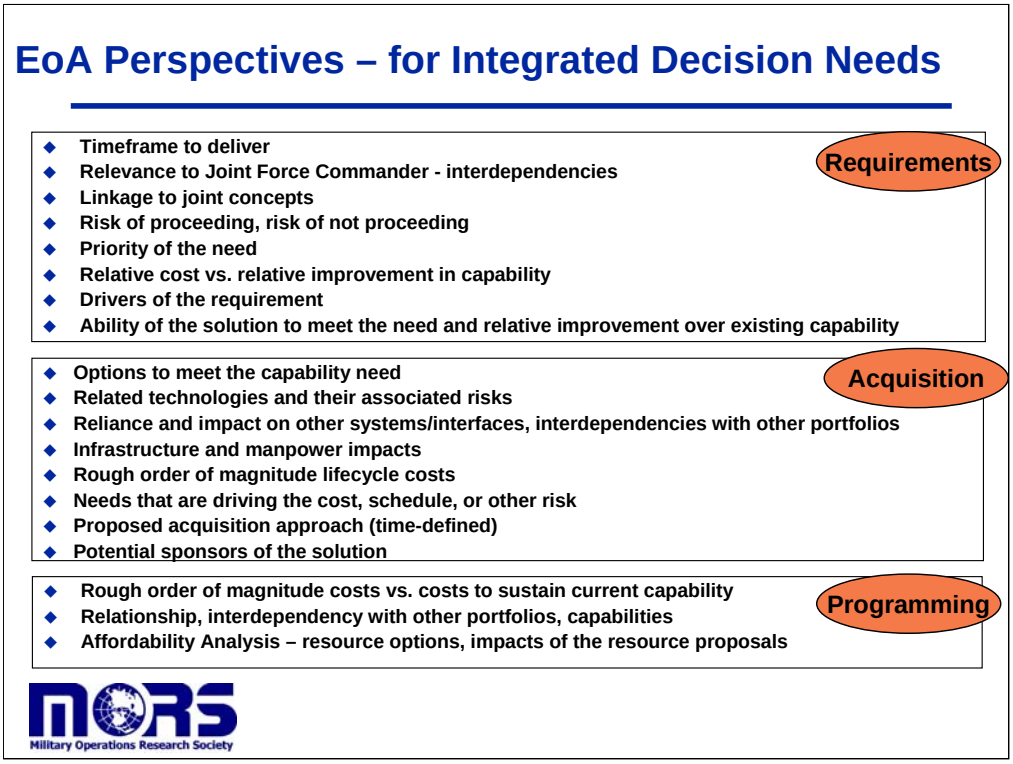


The EoA inputs are being refined but can include what is annotated on the left. The key inputs from the JCIDS process must sufficiently address needs, capability gaps, and priorities. The baseline program of record shall be assessed to determine the gaps over the near, mid and far term. Gaps should be defined with metrics – MOEs and MOPs to allow evaluation of potential alternatives.

Outputs help define a solution space to enable a corporate investment decision at a Concept Decision review. An investment could include all or some of the items listed on the right.



These are the EoA perspectives categorized by the three major stakeholders. These help frame the analysis activities within the EoA. The key perspectives in each stakeholder area include:

1. **Requirements:** The ability of the potential solution to meet the need, relative improvement over existing capability, and what are the relative costs for this improvement.
2. **Acquisition:** The identified interdependencies with other portfolios and the proposed acquisition approach which must be time-defined.
3. **Programming:** The affordability analysis and rough order of magnitude costs of current and potential solutions are key to making a concept decision.

EoA Guidance

- **Who writes it**
  - PAE, with FCB and stakeholder involvement (including CoCOMs)
- **Who approves it**
  - DPAE, VCJCS and DAE
- **What does the EoA guidance contain**
  - Statement of the problem
  - Statement of expectations (prioritized gaps, competed solutions, resourcing options)
  - Designation of the EoA lead, and supporting roles
  - When it is due, and level of resources
  - The oversight mechanism (e.g. Lead FCB, EoA IPT)
  - Competitive solution space
  - Direction to develop a study plan
    - Identify analytical tools, scenarios to be used, MOEs and MOPs, and the methodology (e.g. parametric analysis)
    - Identify resources required
  - Direction to identify offsets within the competitive solution space

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EoA guidance will be drafted by PA&E and will be approved by the PA&E, VCJCS, and the DAE. Key guidance items are the statement of expectations that includes the prioritized gaps, competed solutions, resourcing options, and the direction to identify offsets or divestments within the competitive solution space.

EoA Process

- **Who performs the EoA**
  - Designated Service/Agency lead
  - Joint study group (co-led by Services, COCOMs, etc)
- **Tailored and focused**
- **EoA oversight**
  - Iterative approach
  - To suit decision maker needs (timely and sufficient in depth)
  - Interspersed with IPRs – off-ramps and/or loop-backs
- **Approx time to perform: goal <12 months**
  - When does the clock start?
  - Start-up activities include planning, resources
  - May need ability to forecast EoAs

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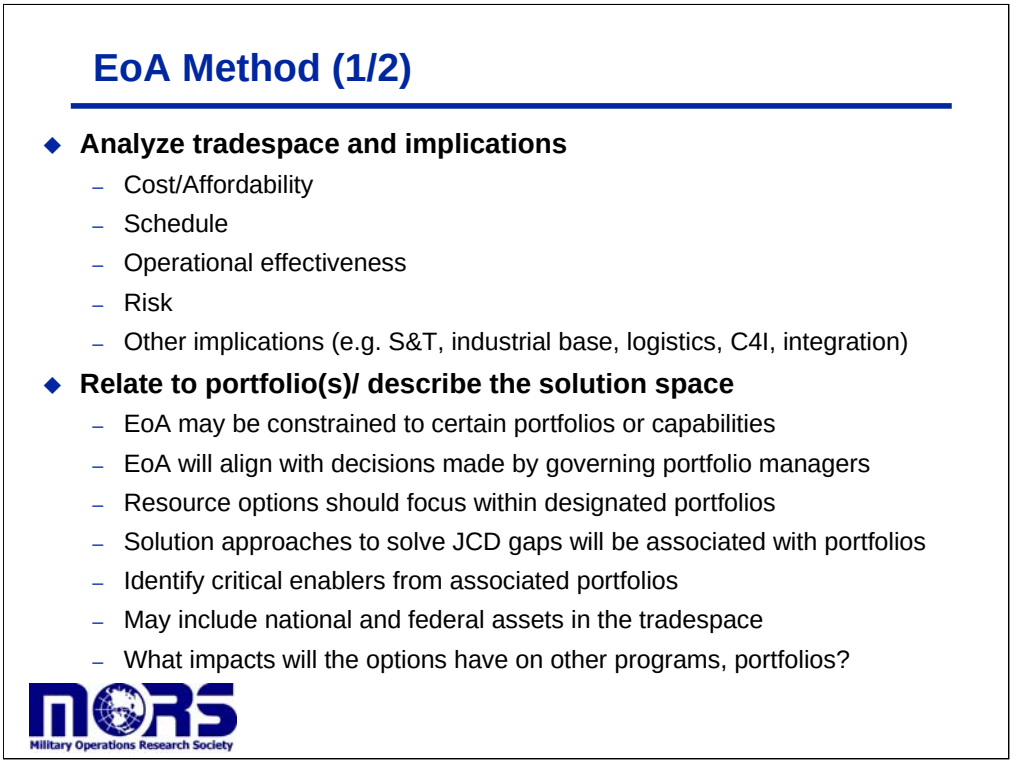
The EoA will be conducted by the designated service or agency or by a co-led joint study group. The key change from an AoA is the time frame from a typical 18 month or more AoA effort, to a 6 to 12 month EoA effort.



The CBA (FAA/FNA), leading to a JCD defining the capability gaps, will be addressed in an EoA. Trade space and implications are analyzed as part of the EoA in regards to the cost/affordability, schedule, operational effectiveness (MOEs/MOPs), and risk (operational, technology, integration etc…). The EoA must describe the solution space relative to the baseline capabilities provided in any given portfolio. All potential solutions must account for resource options, address critical enablers, and interagency assets, and assess impacts on existing programs or other portfolios.

EoA Method (2/2)

- **Evaluate and group alternatives**
- **Analysis sufficiency**
  - Know when to stop
    - The solution space is too risky
    - If you have answered the question
    - Continue to the point where you disqualify an option (e.g. technical feasibility, operational effectiveness, cost prohibitive)
    - Different problems result in different levels of analysis
  - Recommend decision options that can be taken forward in all three processes
    - It addresses the gap
    - It is feasible
    - It is affordable
  - Involvement of EoA oversight throughout
- **EoA forms baseline for follow-on analysis**

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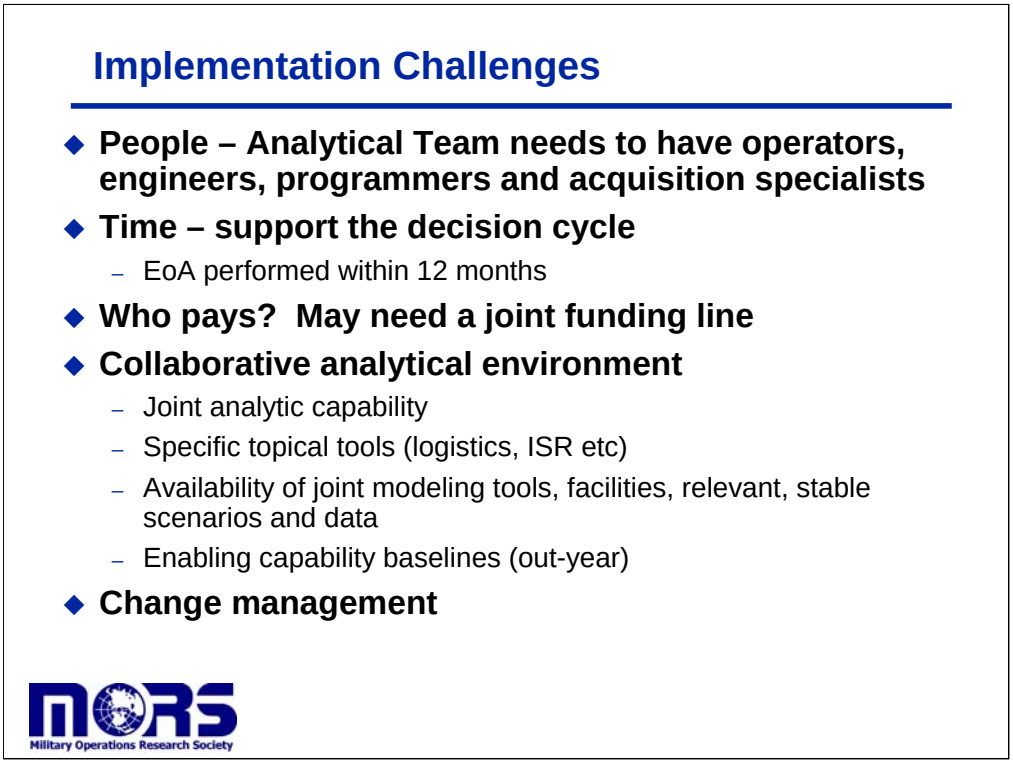
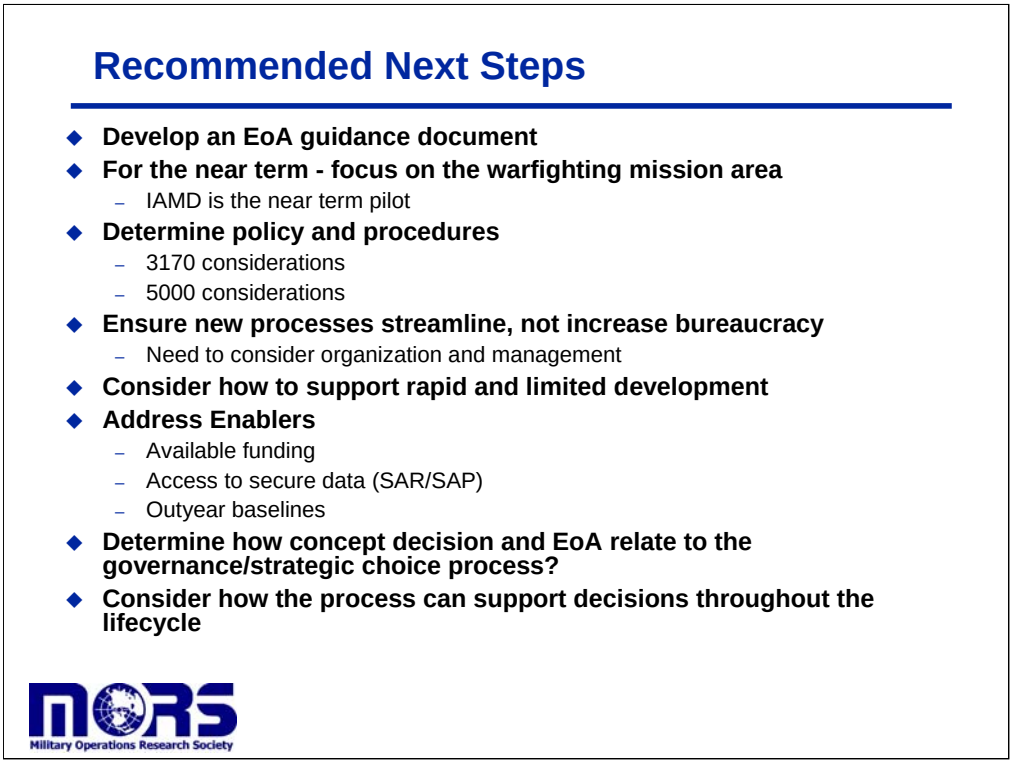
Once the solution space is defined, the alternatives must be evaluated and appropriately categorized or grouped. Knowing when the analysis is sufficient is key to being able to influence the current PPBE process. The solution set is then brought forward in the decision processes of the DoD in the Concept Decision review. The EoA body of analysis forms the baseline for any follow-on analysis if required.



Implementation challenges for the EoA include having the right mix of analytical team members and being able to execute in a short enough time to meet the decision cycle, as well as sourcing EoA funding. The EoA requires a collaborative analytical environment that has joint analytical models, relevant data, tools, and baseline capabilities in the out years that support a holistic effort. This proposed process change requires senior level departmental leadership and a full commitment to implement.



These are the recommended next steps to implement or pilot the EoA process. The intent is to pilot the proposed changes prior to making any permanent policy or procedural changes to 3170 or 5000 references. These pilots will prove, or disprove, the value-added of the EoA and Concept Decision processes. Key enablers must be worked by senior departmental leadership. Concept decision and EoA must be harmonized with the overarching Institutional Reform and Governance roadmap effort. Investment balance reviews will be periodically conducted for midcourse corrections or re-direction.

Conclusions

- **All three decision processes (requirements, acquisition and programming) need to inform and mutually support the decision to invest or divest**
- **Analysis must be joint, capabilities/portfolio based, and reflect a strategic perspective**
- **The need and the investment strategy must be validated through concept decision review before proceeding with the solution(s)**
- **Analysis must be timely, sufficient to characterize a decision space, and identify representative approaches, resource options, and risks**

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The overall conclusions of this WG reflect the JCIDS – acquisition challenges discussed earlier. If properly implemented and executed, it will enable closer coordination among requirements, acquisition, and programming decision processes, and may result in time, and resource savings to better support the joint warfighter.

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MORS Workshop Outbrief:

Capabilities-Based Planning II - The Road Ahead

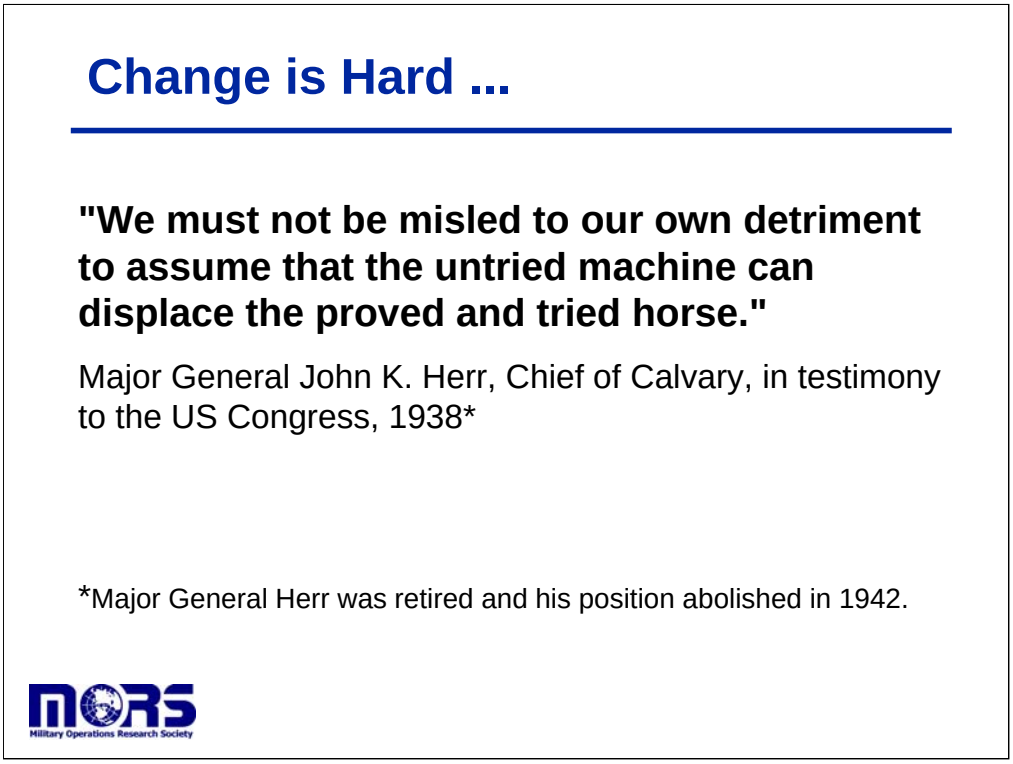
Working Group 4 Report

CBP Support to Strategic Decisions Across Domains

Chairs: Dr. Kirk Yost, Andrew Caldwell, Gary Christopher, Dr. David Wood, Skip Langbehn and LtCol (S) Jeff Grobman

6 April 2007 – Alexandria, VA

The WG representatives came from a diverse set of organizations, including three Allied countries (Australia, Canada, and the UK), as well as the Services, the Joint Staff, several commercial organizations, and two combatant commands (NORAD/USNORTHCOM and USEUCOM).



Making substantive trades across domains is difficult even when the choice seems obvious. Fortunately, the US did not have to have the experience the Polish cavalry did in 1939 to discover that horse-mounted combat was no longer effective.

And Does CBP Help?

A proposal to provide a *new capability*:

Rocket a squad of Marines anywhere on Earth in 2 hours

This is not a capability; it's a solution (to an unstated problem)

MARINES IN SPAAAAAACE!

"After three years of being laughed out of meetings, the U.S. Marine Corps' futuristic plans to deploy through space may finally be getting some traction," notes *Aviation Week*'s spunky new spin-off, *Defense Technology International*.

Although the chuckle factor hasn't altogether disappeared, the Air Force Research Laboratory and Darpa are beginning a study of options for a reusable upper-stage space travel vehicle -- the same kind of technology that the Marines might need for a ride halfway across the globe.

The effort is called "Hot Eagle," and it could be the first step forward in the Marine Corps' hopes for space travel. Within minutes of bursting into the atmosphere beyond the speed of sound -- and dispatching that ominous sonic boom -- a small squad of Marines could be on the ground and ready to take care of business within 2 hours. [One presentation muses that the capsule might later be picked up by a Osprey or by a "balloon cable and C-17" transport plane. Or, the Marines might "hike out," and "leave [the] crew capsule behind." -- ed.]

The Marine Corps calls the concept the Small Unit Space Transport and Insertion Capability (Sustain). This plan, a growing group of Marine supporters say, is the natural evolution of the service's proclivity for expeditionary warfare that began decades ago with amphibious landings...

The concept is to deliver strategic equipment or a small squad of soldiers to any point on the globe -- even the most hard-to-reach location -- within hours of need. Once on the ground, those soldiers can carry out strategically critical missions like reconnaissance or destroying a specific target.

At least, that's their pitch.

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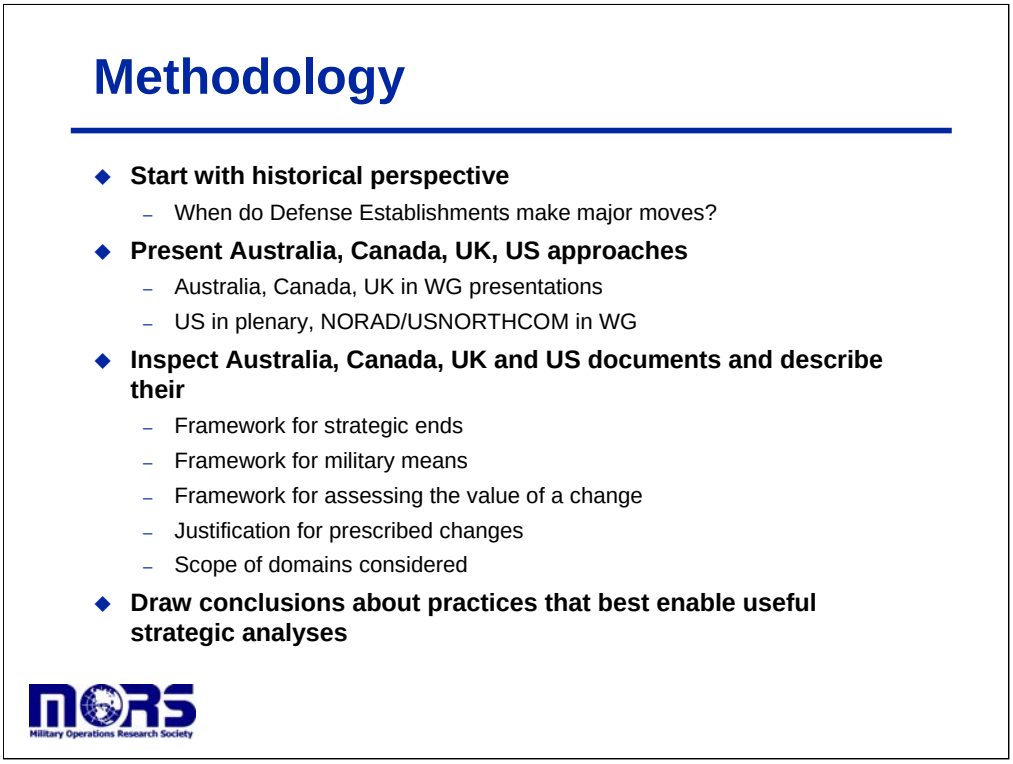
The larger question is whether adopting a capabilities-based approach enables necessary strategic trades, or at least makes possible trades easier to identify. To often, the notion of a capabilities-based process is merely exploited to offer new "capabilities" without accompanying rationale, as noted by the example on this slide.

Reference: *Marines in Spaaaaaace*. Defensetech.org. (2006). http://www.defensetech.org/archives/001815.html (11 July 2007).

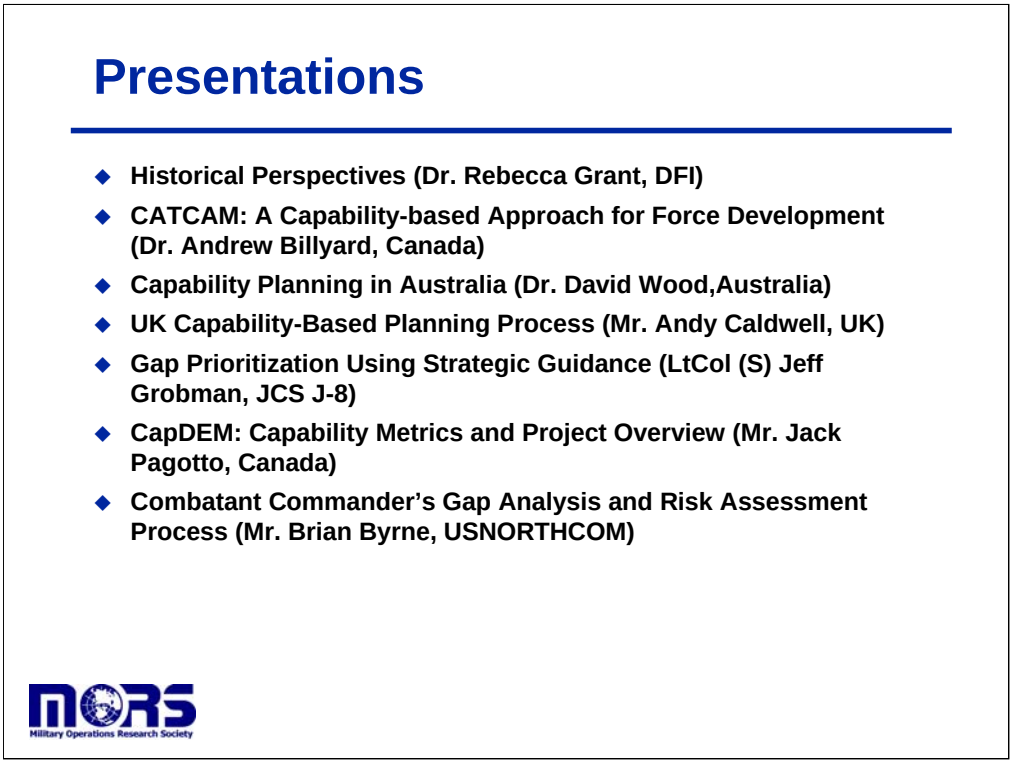
WG Charter

- **Describe how we currently deduce from strategic guidance**
  - Capabilities
  - Needs
  - Risk tolerances
- **Describe how we currently use this guidance to recommend trades among domains (Services, functions, force types, or funding areas)**
- **Make recommendations on how strategic guidance (via CBP) can enable effective analysis across domains**

Since major strategic trades must occur at a level above the domains, such as a Service, the working group concentrated on high-level strategic guidance and how it can be employed to analyze trades. The working group also had a task to give recommendations on how such guidance could enable such analyses.



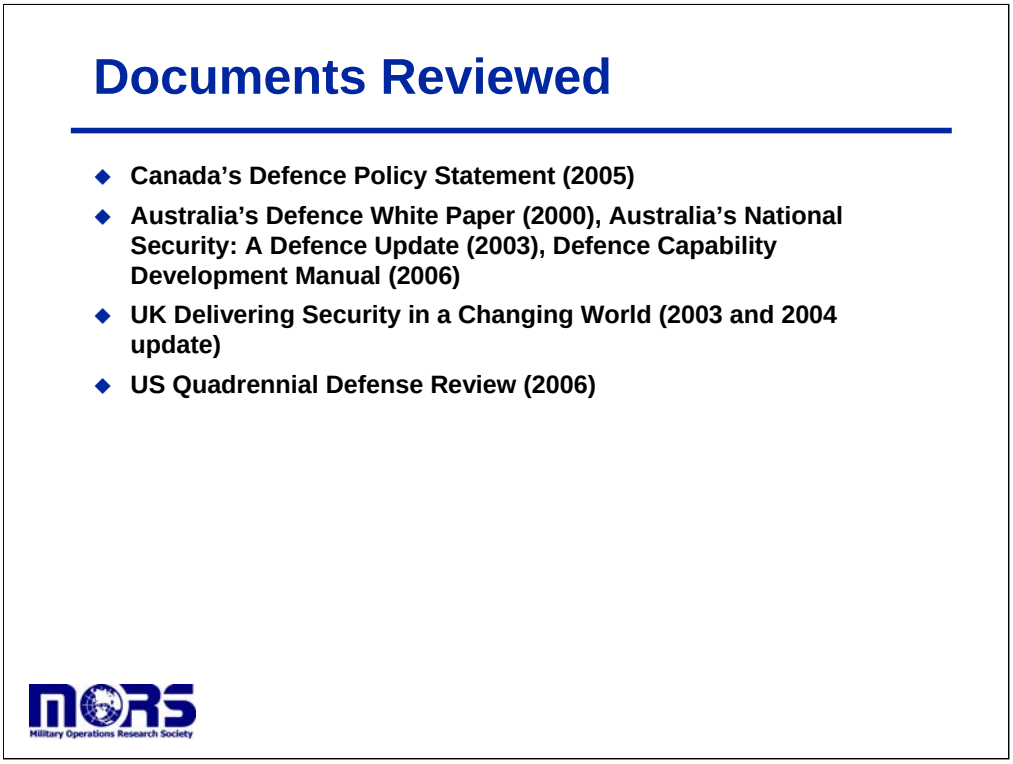
The working group opted for a short review of recent (post WW II) changes in US force structure, and then proceeded to examine the approaches used by the Allies in determining force structure trades. The bulk of the work done by the working group was examining a set of unclassified strategic guidance from the four countries, and drawing conclusions from those documents.



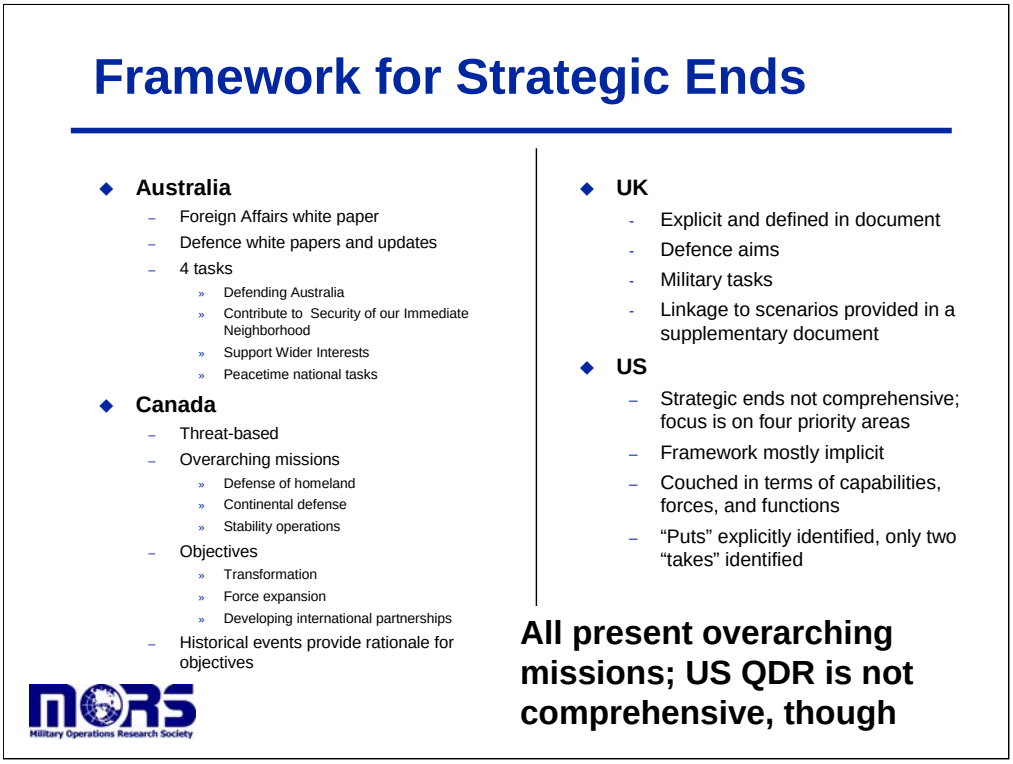
Dr. Rebecca Grant from DFI began the presentations with a review of major US force structure changes since the 1950's, describing the Eisenhower "New Look" initiative as well as recent moves since the fall of the Soviet Union. Dr. Grant noted while the strategic shifts had been specified in a top-down fashion, the actual major restructurings had been done by the Services themselves (e.g., the USAF AEF restructure, Army modularization, and the Navy's Seapower 21 initiatives).

The working group found the other TTCP nation's presentations on their strategic analyses to be very interesting, particularly the UK presentation. Surprisingly, two presentations (the Canadian CapDEM and USNORTHCOM briefings) both made use of architectures as a means of doing such analyses. Since architectures have of late fallen into disfavor in the US DoD for such analyses, it was interesting to see two presentations that had used architectures.

The J-8 presentation noted that attempts to use a "pure" capabilities-based approach based on existing US Joint Concepts and attributes was unsuccessful, and that it was necessary to consider a broad set of scenarios to do any sort of usable analysis.

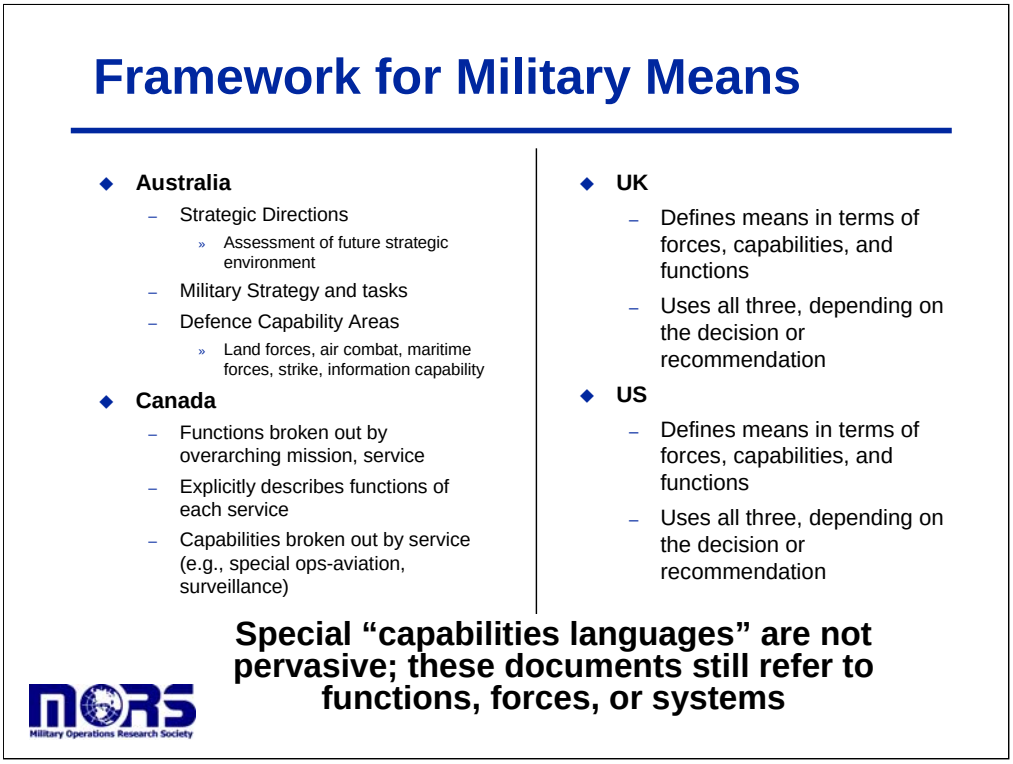


The working group was able to take advantage of the fact that each of the four countries had major defense review documents readily available in an unclassified form. Of these documents, the UK 2004 update was notable in listing the strategic imperatives as well as the resulting force structure changes, allowing the reader to see a strategy-to-force-structure development explicitly.



We first examined how these documents presented strategic ends — the major objectives to be attained by the Defense establishments. Of the four, only the US QDR was not comprehensive, as it concentrated explicitly on four major challenge areas.

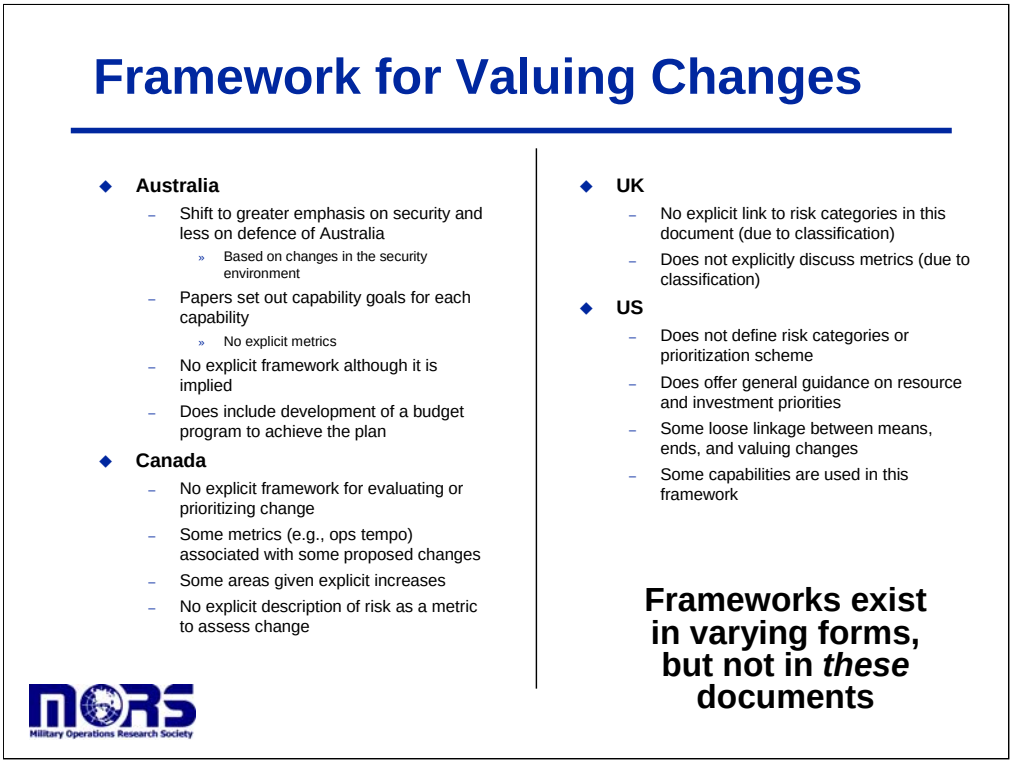
All the documents cited recent events as major drivers for trades within the forces. In some cases, the documents cited forecasted threats (e.g., the US QDR's section on shaping choices of countries at a strategic crossroads), but the bulk of the documents focused on the need to improve irregular warfare capabilities as well as the need to accommodate increased operations tempo for those types of conflicts.



One question of interest was whether these documents employed any sort of capabilities language (such as the US Joint Capabilities Areas, or JCAs) to describe military means. For the most part, these documents did not rely on such a taxonomy, but instead talked in terms of functions, force types, or weapons systems.

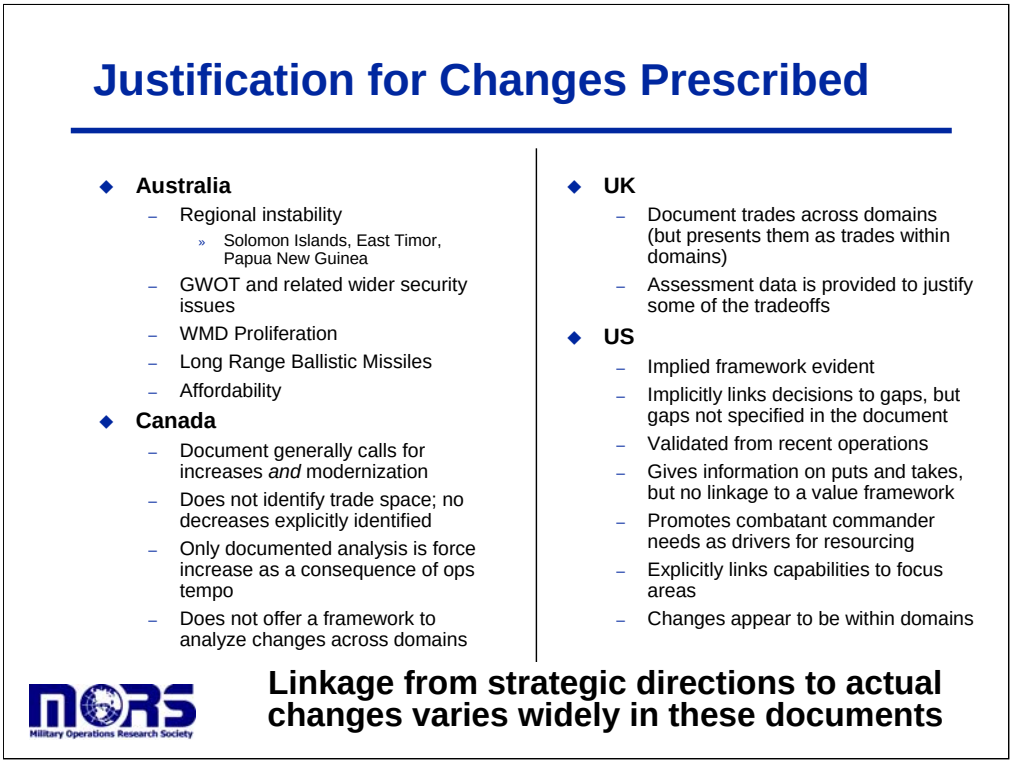
In some cases, functions or missions were labeled as capabilities, but the group did not see any sort of revolution in terms of a taxonomy to describe military means.

This lack of reference to a capability taxonomy is understandable given that the aim of the documents is to explain policy to the public.



These documents offered some verbiage for being able to analyze the worth of a trade, but did not contain enough information to perform any sort of analysis. The UK representatives noted that their defense establishments did publish detailed risk guidance in terms of criteria for success and maximum losses allowed, but those documents were classified. One allied attendee made an interesting observation based on his first exposure to the game of baseball. He noted that in order to hit a home run, it would be good to know how far you had to hit the ball (and he was surprised to discover that it varies depending on the ballpark).

The point here is that despite much discussion of risk guidance in the US, there isn't much usable risk guidance (and much less overall utility guidance) available. The working group noted that such guidance, if it existed, would be inappropriate for these unclassified documents. Nonetheless, such guidance is essential to know if we have hit a home run or not.

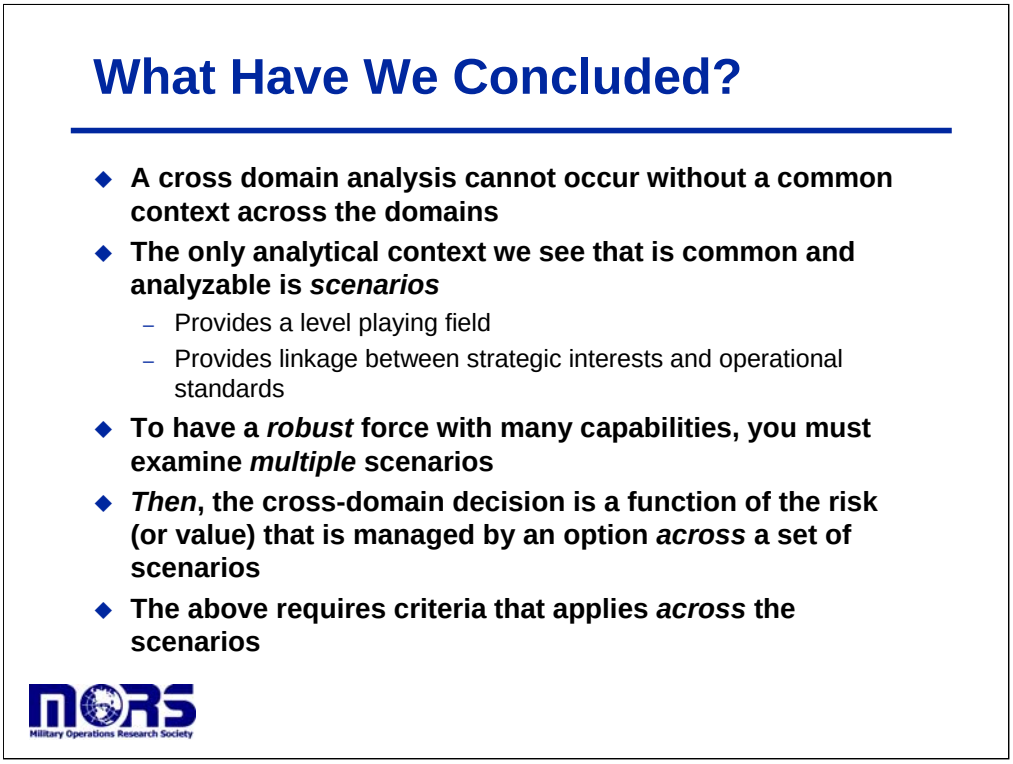


All of the documents we examined prescribed specific force structure changes. However, the linkage between the strategic aims and the changes varied quite a bit. Again, the working group would not expect to find the details of the analyses that led from a strategic imperative to an actual force structure change, but we did find it interesting that quite a few changes were not explicitly linked to strategic frameworks presented within the document.

The two reasons for strategic changes seem obvious, but the group felt it was worthwhile to document them simply because they form a straightforward way to justify why changes occurred.

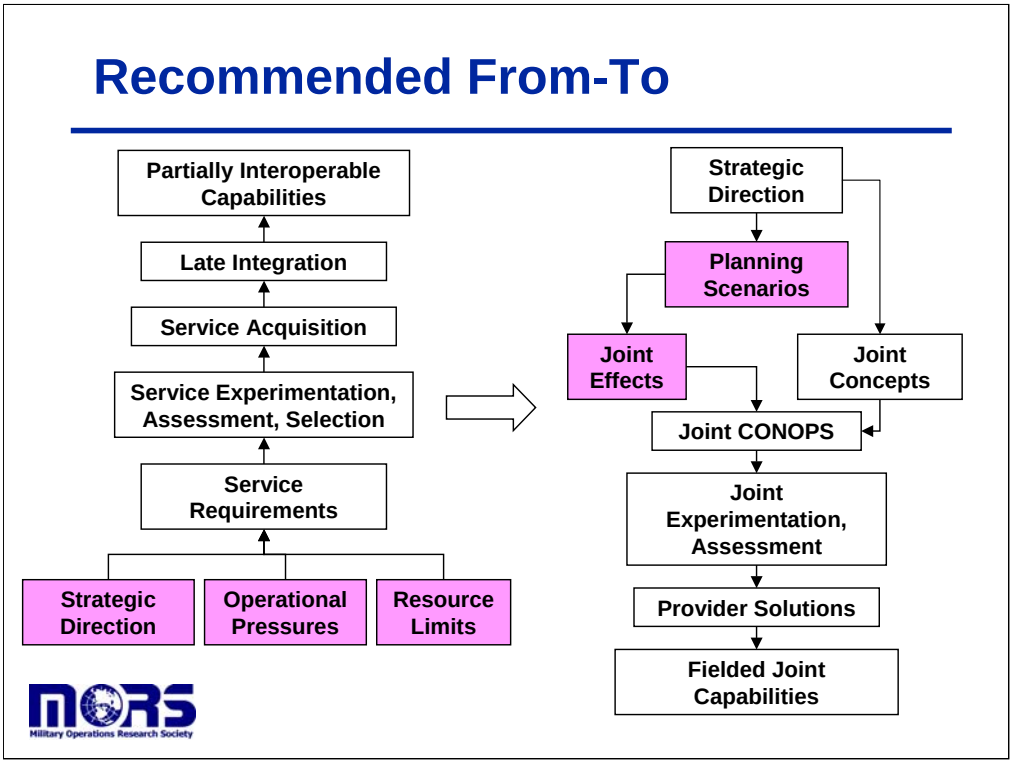
The working group also noted that any defense establishment, capabilities-based or not, must support a mechanism that allows examining possible trades across domains. Such a mechanism could be done by a single organization within the establishment (such as practiced by several of the other nations), or can be accomplished by more of a capitalistic model (such as the current US approach of giving the Services organization and equipping responsibilities).

Even in the smaller and more concentrated other Defense organizations, examining large trades is a difficult, politically charged process requiring a great deal of strong leadership. No group believes that it is supporting a modern-day version of the horse cavalry that should be traded away.



The group was quite firm in the view that the only workable way to trade across domains in any scientific way was to consider a set of common scenarios. All the countries involved noted that various attempts to talk in terms of abstract capabilities had not succeeded; it was necessary to specify scenarios both to provide a way to simultaneously examine the contributions of various force elements as well as connect the analysis with the larger set of strategic interests.

The main problem that the capabilities-based approach was developed to solve (concentrating on a single or inadequate set of scenarios and bottom-up or threat based planning) is easily fixed by expanding the scenario set. All of these countries now have scenario catalogues with 10's of scenarios, and most of them examine 4-10 of them each year.



In one of the plenary briefings, the presenter showed a common US slide that documents the reason for the US switch to a capabilities-based approach. That slide (with the boxes shown in white) misses several very important points that came out of the working group's discussions (the colored boxes).

First, recent history shows that it is untrue that the US Services develop requirements independently of strategic direction. In addition, the Services have had to react to both operational pressures and resource limits (manning and dollars).

Second, the working group strongly feels that planning scenarios, which in turn generate desired effects (or military objectives, depending on how the reader feels about the notion of "effects"), are essential to provide the necessary context for trade analyses. Indeed, the common US definitions of such things as CONOPS require both objectives and concepts to formulate, and the objectives must necessarily come from scenarios.

Aside: An Opportunity

- **If scenarios are *this important* ...**
- **And if *improving partner capacity* is a focus area, then**
  - We could share *some* information about *some* scenarios
  - We could share *some* level of force employment data
  - We could share *some* information on force capabilities (i.e., who can do what)

Do we want to be a networked coalition or a coalition of networks?

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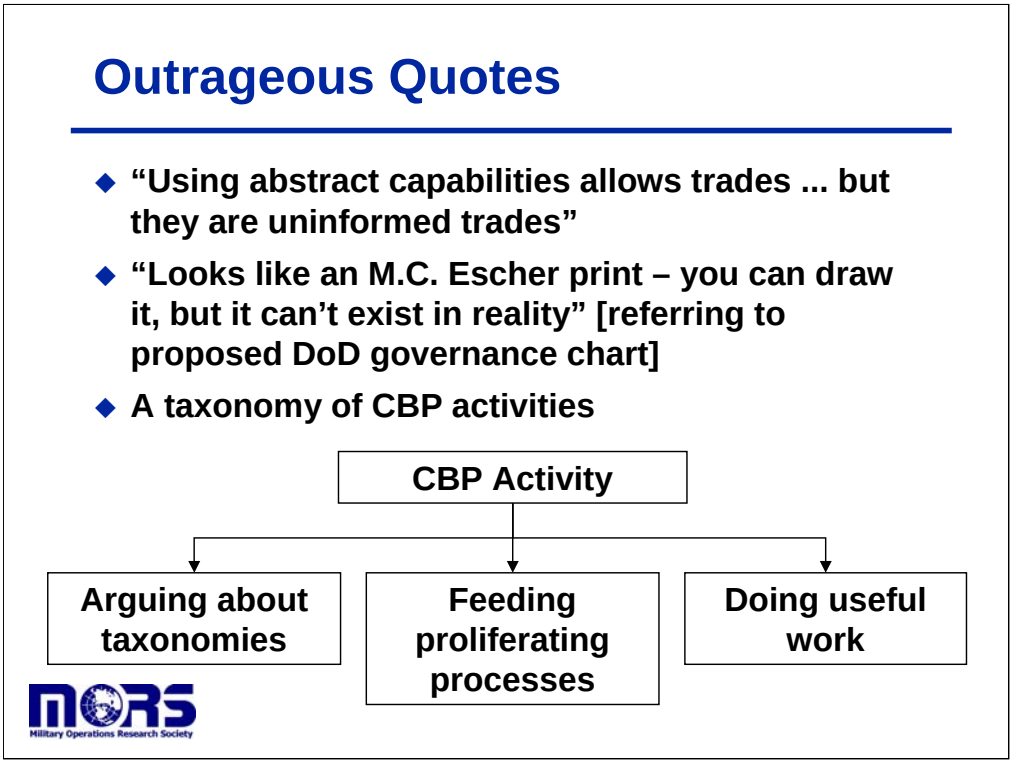
Since this working group was strongly supported by the other TTCP countries, they noted that the US QDR supports the notion of sharing scenario information to enable combined analysis and the called-for increase in partner capability.



While these quotes are labeled as outrageous, they unfortunately contain a fair amount of truth about the state of the capabilities-based approach in the DoD, and the points seem to be borne out by the discussions at the workshop. Several presenters still cling to the notion of scenario-free analysis using capabilities, despite a lack of *any* success using such an approach. Also, the proliferation of governance processes presented by the plenary speakers generated many comments. While there was a great deal of debate about taxonomies such as the JCAs, there was much less discussion about what we might do with them, resulting in the taxonomy offered above.

Backups

MORS CBP Lingo

- Mission: The objectives and end states assigned to a commander
- End state: A set of conditions, behaviors and degrees of freedom that define achievement of a mission
- Effect: A change in a condition, behavior, or degree of freedom
- Capability: The ability to achieve a desired effect under specified standards and conditions
- Task: An action or activity assigned to an organization to contribute to achieving the end-state
- CONOPS: Overall picture and broad flow of tasks within a plan; a mapping of capabilities to effects to accomplish a mission
- Scenarios: Assumptions about political/military context, objectives, order of battle
- Conditions: The operational environment
- Standards: Measures of the level of performance of a task

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MORS Workshop Outbrief:

Capabilities-Based Planning II - The Road Ahead

Working Group 5 Report

CBP Support to Decisions Within a Domain

Chair: David Markowitz

Co-Chairs: Virginia Beall, Cliff Tompkins and Ben Taylor

6 April 2007 – Alexandria, VA

Working Group 5 was composed of representatives from all four US Armed Services, two Combatant Commands (USTRANSCOM, USNORTHCOM), and the UK Defence Science and Technology Laboratory (DSTL). Several members had previous Joint Staff or OSD experience but the working group had no current representatives.

Speakers included:

Dr. David Markowitz, Center for Army Analysis - Total Army Analysis and QDR

Ms. Virginia Beall, N816 - Navy Approach to GWOT

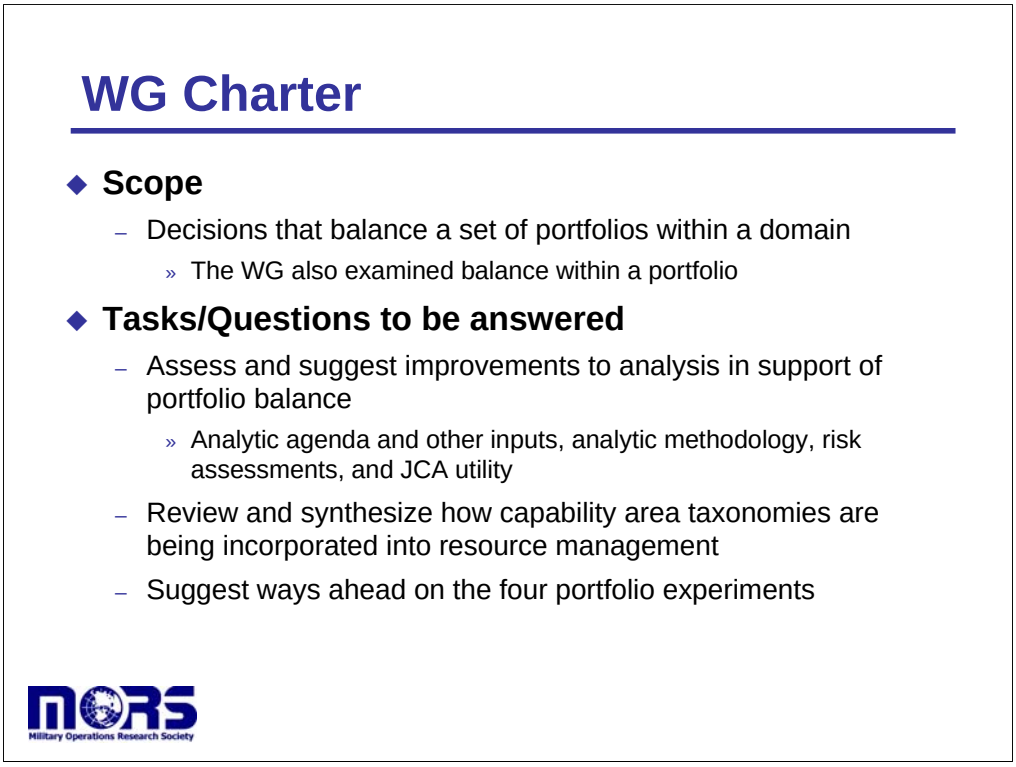
Mr. Clifford Tompkins, A9 - Air Force Studies and Analyses, Assessments and Lessons Learned

Col Gregory Reuss, Marine Corps Combat Development Command - Capabilities-Based Planning II ..."Expeditionary Domain"

Dr. Ben Taylor, UK DSTL - UK Scenario Integration and UK Capabilities Taxonomy Lessons Learned

LTC Pamela Hoyt, Army G8/DPAE - Army POM and JCAs

Mr. Bob Henson, A9 - AF Alignment Implications of its “FORCE” PEs to JCA Role Families



The WG focused on obtaining lessons learned from actual experience in balancing capability portfolios. With the completion of QDR06, we hoped to draw upon how the senior leadership viewed capability portfolios in their decision making processes. This led to discussions on overall resource management – and for the US - how capabilities are balanced in the Program Objective Memorandum (POM). Initially, the group intended to only discuss balance between capability portfolios, but given the Plenary challenge of managing the four portfolios experiments (Joint Logistics, Battlespace Awareness, Joint Command and Control, and Net-Centric Operations) the group discussed management and balance within a portfolio.

For the overall portfolio management, the group examined how analysis has been used to support portfolio balance and how capability areas are being translated into resource management. In the US, this latter piece is a new initiative and so the working group assessed emerging insights instead of confirmed lessons. In the UK, the UK MoD has been using capability areas in its resource management process for almost a decade and the UK working group participants offered hard earned lessons.

Background and Key Definitions

- **Domain: Air, Ground, Maritime, (space)**
- **Decisions within a Domain: Decisions that balance capabilities (resources) in a domain-oriented portfolio**
  - Example
    - Integrated Joint Ground Capabilities Review (sub study of QDR06)
    - Joint Air Dominance Study (sub study of QDR06)
- **Examined this from a Service perspective**

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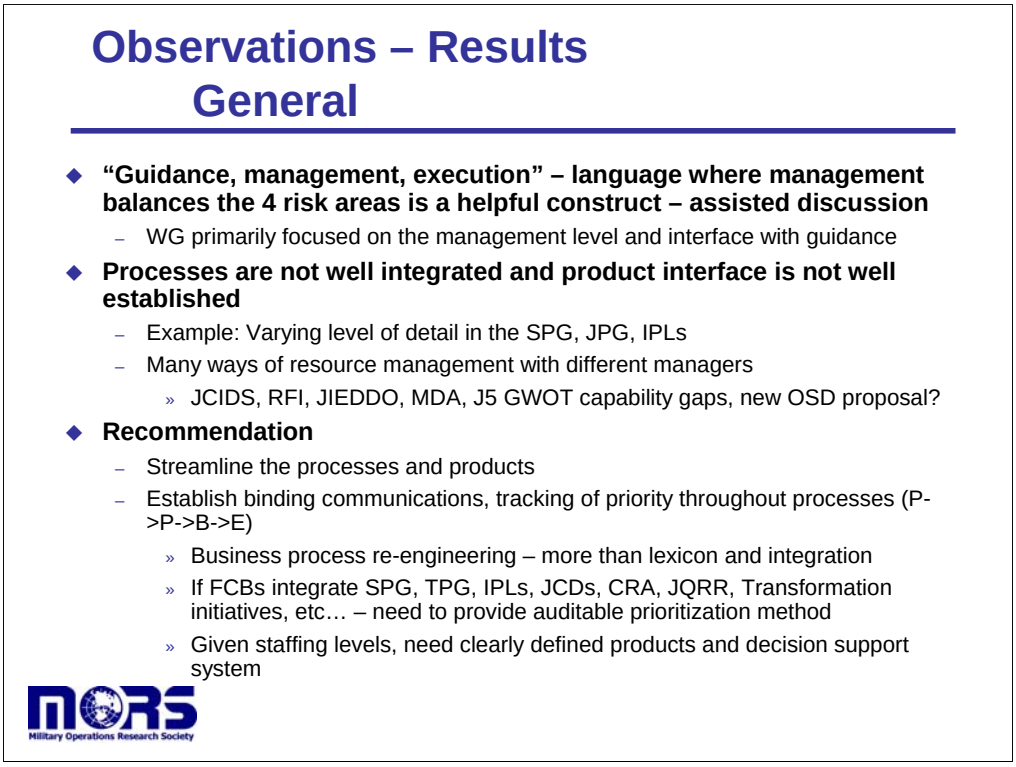
There are multiple definitions of Domain. The working group used the definition used by the senior leadership in QDR06, which was based on operating environment. In QDR06. the senior leadership directed several domain analyses and used them to help balance resources within the domain. This led to a Service oriented view in several of these studies, as much of the balancing was within a Service's programs. With the exception of the UK presentations, the working group presentations were Service based as well.

The working group addressed the tasks with a two part discussion with and later integration.

Part one included US Service and UK examples of analytic support to portfolio management. Talks included: "Total Army Analysis & QDR," "Navy Approach to GWOT," "Air Force Studies and Analyses, Assessments and Lessons Learned," "Capabilities-Based Planning II ...Expeditionary Domain," and "UK Scenario Integration."

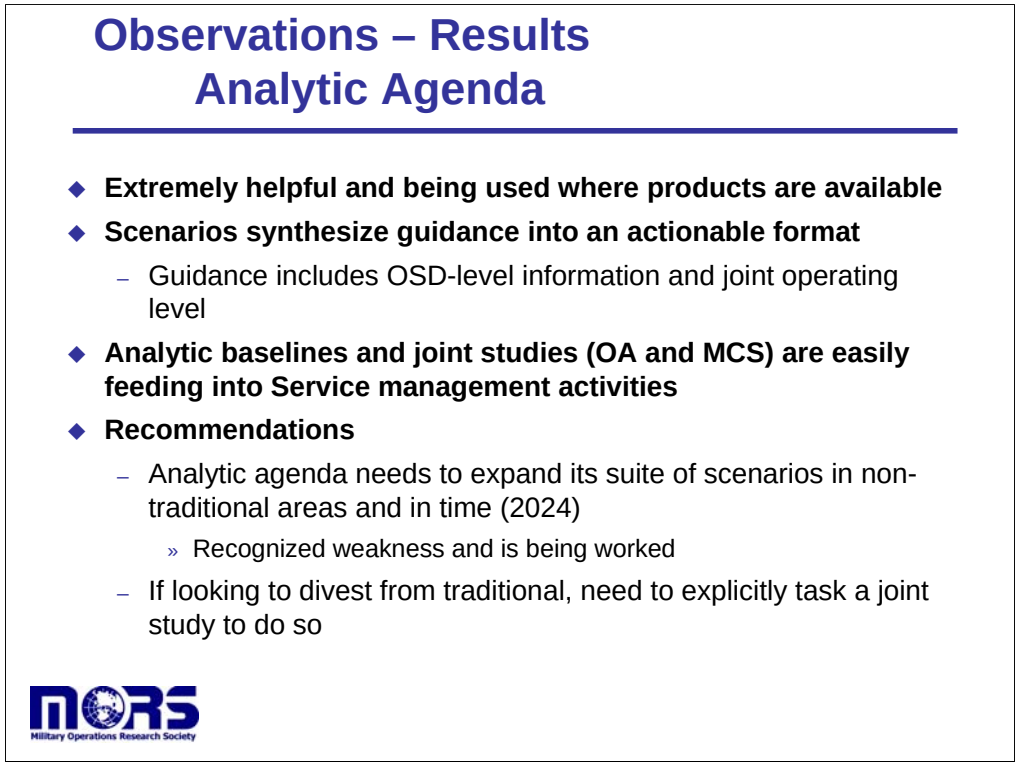
Part two included examples of how Program Elements are being mapped to JCAs and lessons learned from the UK. Talks included: "Army POM and JCAs," "AF Alignment Implications of its "FORCE" PEs to JCA Role Families," and UK Capabilities Taxonomy Lessons Learned.



As a general note about a conference that focused on language and taxonomies, the Institutional Reform and Governance plenary briefing that identified three levels of decision (guidance, management, and execution) facilitated our working group's discussion. The group felt that the portfolio balance analysis was the responsibility of the 'management' section.

In addition, although the plenary addressed the formal resource allocation (PPBE) and acquisition processes, the current war has generated a variety of uncoordinated means of identifying and filling gaps. Although the formal process addresses the base budget for the DoD and the war related activities (RFI, JIEDDO, the J5 War on Terror lead capability gap assessments) are usually included in the supplemental, they do have significant overlap as the war related activities are migrating to the base budget. Staff elements are attempting to integrate the two, but are being overwhelmed. Any streamlining of the processes is welcome and the J8 initiative on a Capabilities-Based Planning Instruction looks to be a good step forward.

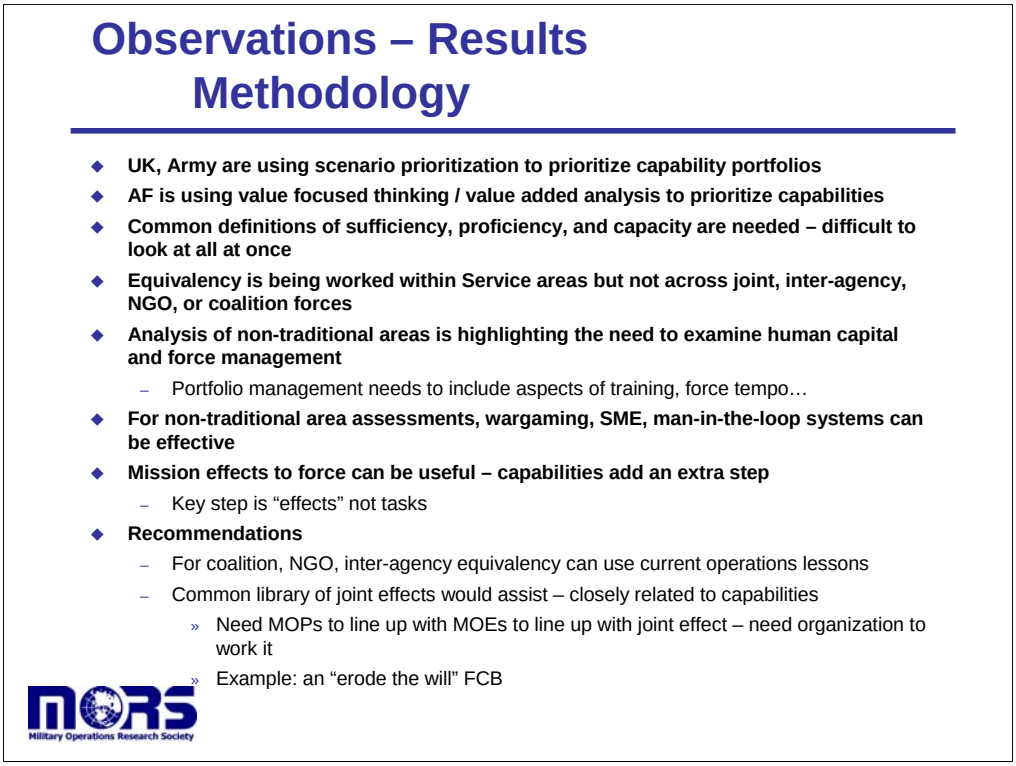
The group also concluded that one of the greatest areas for improvement is identifying the types of output desired from each step of the resource allocation process. Much of the work on capabilities-based planning has been on language, when it appears that the desire is more business process re-engineering. A necessary step is to identify what the process elements are and how they relate. Steps have been worked on in JCIDS, but the group was uncertain of the output of each step. In particular, we need a method for tracking priorities in a form of 'binding communication' – this would facilitate consistent prioritization and auditability of decisions.



The working group consensus was that the analytic agenda was extremely useful for several reasons: it provides usable products that fit easily within existing processes; the scenarios provide a method of implementing policy and joint operating guidance in a workable format; and, baselines save on overall staff effort.

The only difficulty with the analytic agenda is its lack of breadth – to date, most of the analytic agenda products have been in the 'traditional' quadrant of the four challenge areas and has either near-term or future year defense plan timeframes. Both of these deficiencies are currently being worked by the Joint Analytic Data Management Steering Committee.

Throughout the QDR, some of the senior leaders have expressed concern with the analytic agenda in that it did not clearly identify divestitures from traditional warfight capabilities. However, this was never directly asked of by the analytic agenda or the studies (such as the Operational Availability series). If this is of special interest to the leadership, it needs to be specifically requested — it is unrealistic to think that savings will spontaneously appear without deliberate discussions on how much risk the DoD is willing to take in the traditional area.

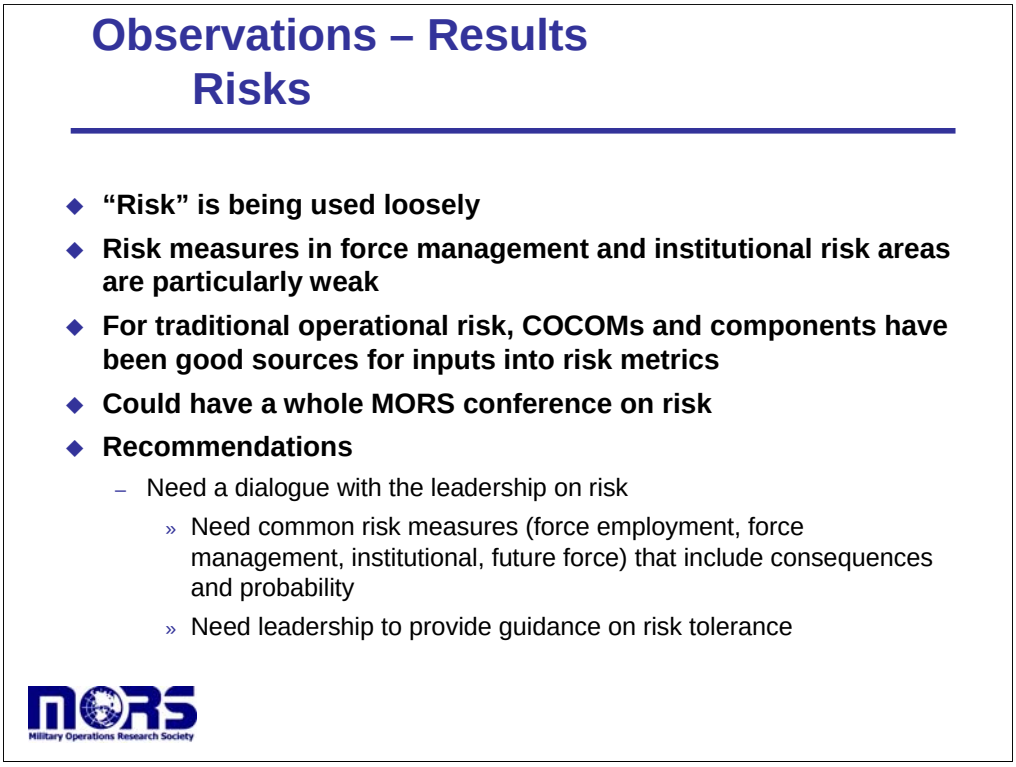


Balancing capability portfolios requires some form of prioritization. Two appear to be in use within our group: 1) prioritization through scenarios (i.e. certain capabilities and their required capacities are sourced for one scenario, then another until resources are committed); and, 2) a value focused thinking/value added analysis where senior leaders are allowed to prioritize capabilities (and in this case scenarios provided a context for prioritization)

Several interesting items of note occurred during the group's discussions:

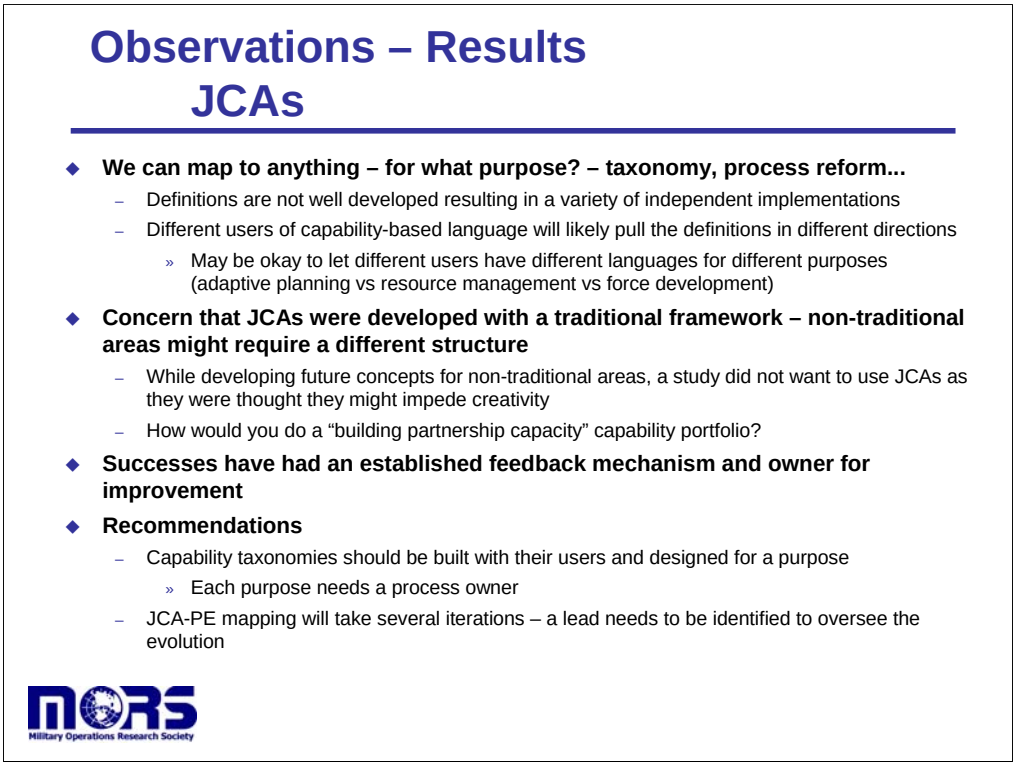
1. Common definitions of sufficiency, proficiency, and capacity were lacking and were getting confused.
2. Force equivalency to satisfy a capability need is being worked in each US Service for resourcing decisions, however no joint, inter-agency, or coalition equivalency effort is under way (this was a particular sticking point in the OA-06 study).
3. QDR, Army, and Navy initial GWOT analysis is highlighting the need to examine human capital and force management needs as these are critical enablers to achieve the capabilities desired. For example, language and cultural awareness training of certain portions of the force need to be part of a GWOT 'portfolio' but these enablers normally lie outside of the force program elements and instead are part of the institutional and force management. The current JCA effort is more oriented toward classifying forces, not their training requirements.
4. For assessing the non-traditional challenges, other analysis methods are available – the Non-Traditional Challenges MORS workshop provides many insights into how to do this.
5. Several of the Services and the UK establish force requirements to fulfill a scenario or mission by mapping mission to effects to forces. Capabilities is a redundant step; desired 'effects' is the critical one.

For the next steps, the working group recommended: 1) expand the Service equivalency efforts in a joint or coalition context; and, 2) create a common joint effect library – it is closely linked to 'capabilities' but will help standardize some of the effect language. This will also assist developing consistent metrics to line up measures of performance to measures of effect to a joint effect. A library or reference is needed because several desired effects being seen in planning are difficult to source. For example, is 'erode the will' a joint effect we wish to manage and hence have something like a FCB to monitor it? Or do we want to specify effects in a more functional format.



The working group briefly discussed risk and realized that each participant was using the term differently. An entire MORS workshop can be devoted to risk measurement techniques.

Dialogue with the leadership is needed to help establish risk metrics. The IDA ICARM work appeared promising, however, the working group wondered if the process could not be strengthened by initially deriving common risk measures so that leadership interviews could be better integrated. Working group participants have successfully used methods of identifying consequences and probability of occurrence to facilitate senior leadership dialogue. After a common risk measure and framework are created, discussions with the leadership can focus on risk tolerance guidance. With well defined measures, the risk tolerance guidance can then be used downstream by the management level that has to balance these risks.



Overall, the working group was confused by the JCA efforts, in particular the initial mapping of the program elements (PE) to the JCAs. The lack of an overall goal of how this mapping might be used has allowed for a highly decentralized interpretation of the JCAs. In the two briefs we had on PE to JCA mapping, the two Service implementations were vastly different. The COCOM representatives who had hoped to use this information were surprised as they had come up with their own interpretation. This will take several iterations to get right and whoever is the user of this information (OSD PA&E, COCOMs, etc…) needs to lead the effort at providing definitions so that the product is useful, otherwise integration of the Service efforts will be difficult to improve in further iterations.

The group also discussed the likelihood that JCA definitions will diverge depending on their use. The UK experienced this phenomena with capability taxonomies being used by their doctrine development sections and their resourcing sections. The divergence was helpful and needed for both groups to do their job. This will likely happen in the US.

It is also interesting to note that in one case, when discussing future concepts of operations in non-traditional areas, a participant did not wish to initially use the JCAs as they felt they were developed under the traditional warfighting scheme and might inhibit creative CONOPs development. The resulting CONOPs desired effects and forces were able to be mapped back into the JCAs, but it was not necessarily a first step. Similarly, under the current effort to map PEs to JCAs, it would be difficult to create a 'building partnership capacity' portfolio – an item of great interest in the QDR, as partnership capacity is not a tier one JCA (it is a tier 2 JCA, but the PE mapping is only to tier 1 and it is not clear that many-to-many mapping of PE to tier 1 is understandable)

The group concluded that a successful way ahead depends on an iterative process that gradually improves the JCAs and the communities understanding of how to use them. The process needs to be controlled by the user or even different user communities or else iterations may not gain acceptance and utility.

Suggestions for Four Experiments

- **Open, transparent process with stakeholder involvement**
- **Develop and communicate the intended use of results early in the experiment (what does the output feed and how)?**
- **Don't try to go from guidance to detailed recommendation all at once – use a staged process that gradually focuses the portfolio priorities and allows for stakeholder shaping and buy-in**
  - Tried to do this already – Deep Attack Weapons Study – attempted to do everything at once
  - UK has had success with more gradual approach

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The working group briefly discussed the four portfolio management experiments. The group's three suggestions are listed on the slide. They were derived from discussions of lessons from the UK portfolio management experience and from ways to mitigate current Service confusion and angst.

Conclusion

- **Unity of effort – welcome the capabilities-based planning instruction**
- **If you are going to link the processes, need more than a taxonomy**
- **This will take several iterations to get right**
- **Take advantage of lessons so that they are learned (UK)**

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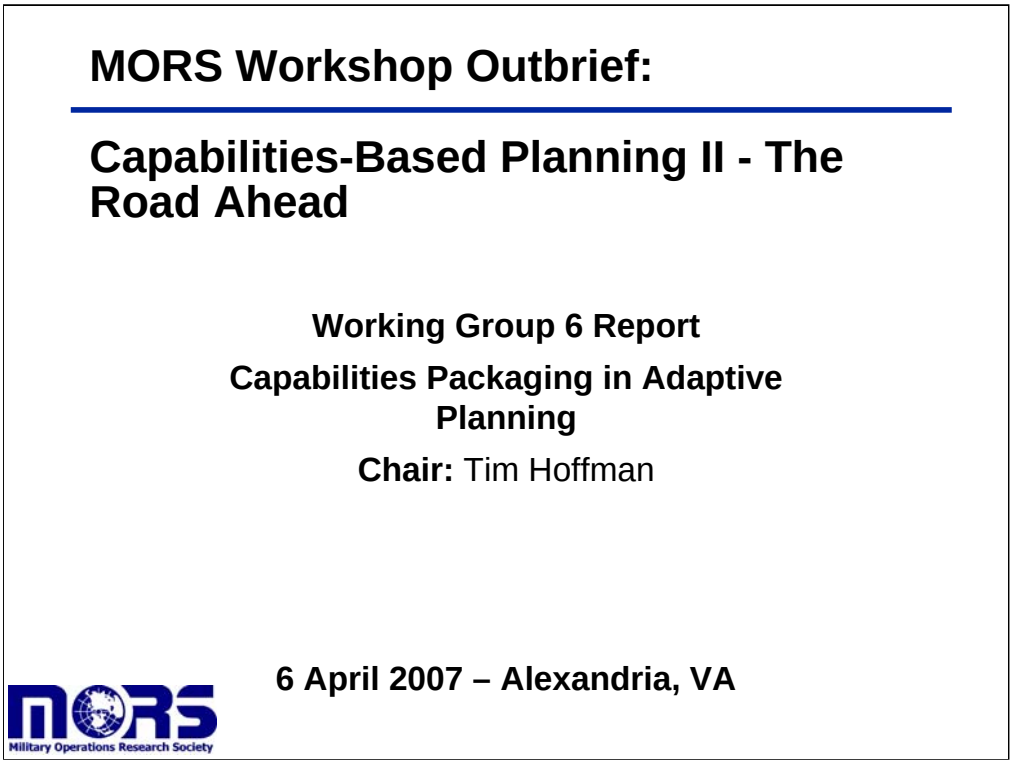
The working group's strongest conclusion was the last: Our allies have tried this and have a wealth of knowledge. The US would be losing a great opportunity if we do not capitalize on their knowledge.

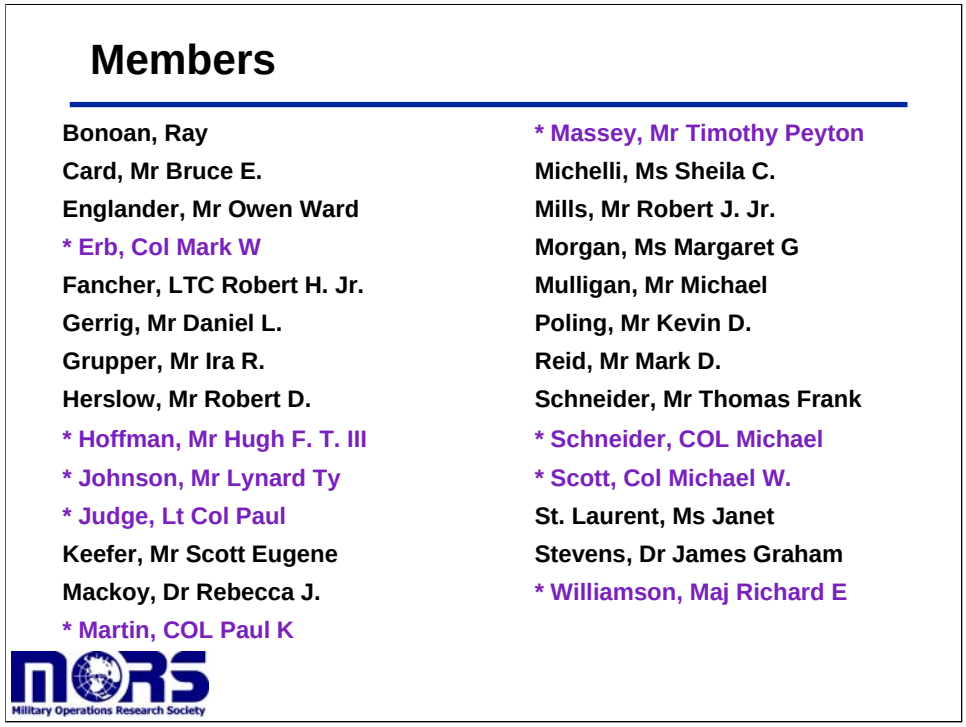


Good afternoon. I'm Tim Hoffman, and I've had the pleasure of being the Chair of Working Group 6 for the past couple of days.

I'm happy to report that we've been able to do some groundbreaking work that begins tying capabilities-based planning – a concept which has heretofore largely been employed in the analytic and programmatic communities – to the world of operational planning.

I believe I speak for the entire working group in saying that we think capabilities-based planning (CBP) could eventually prove to offer great utility in the world of contingency planning.

Much hard work, however, needs to be done to make capabilities-based planning a practical reality in the contingency planning world. While we already have tools in place that could facilitate this work, we will need to invest considerable intellectual energy into a doctrine that could support such planning.



As you can see by this slide, we had a robust mix of operational planners and analysts. As you might imagine, this mix was excellent for provoking stimulating discussion.

The names highlighted in purple (*) identify the eight working group members who are currently involved with contingency planning at various levels in the DoD.

Many of the other members have planning experience in previous assignments or are indirectly involved with the DoD's contingency planning.

The names in black are the representatives of the analytic community.

Each group brought a great deal of expertise to the session, and their respective expertise was invaluable in producing the product in this briefing.

Workshop Objectives

- **Assess how CBP can be used to help in planning and decision making in the Department**
- **Expand the theory of CBP with specific focus on risk and developing analytic approaches across the full spectrum of CBP**
- **Suggest actions the Dept may take to help implement CBP DoD-wide (training needs, documentation, . . .)**

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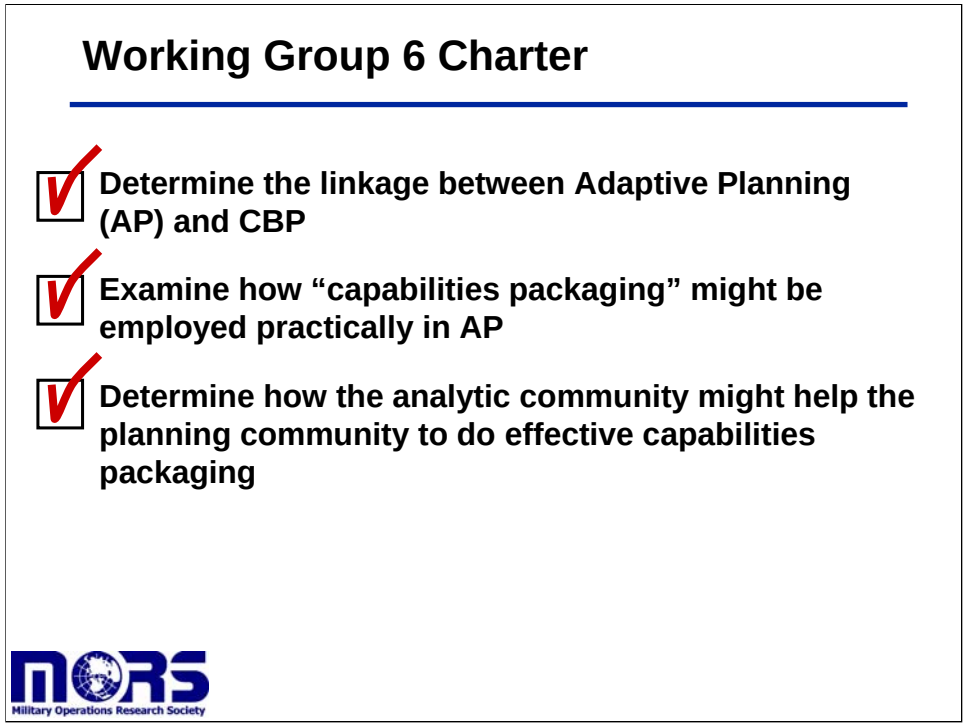
To understand the context for our working group's objectives, I thought it would be good to review the conference's overarching objectives first.

As you will see on the next slide, we designed our objectives specifically to support the objectives on this slide – and our efforts were nested well within these broader goals.

I will touch on all of these broad objectives as I proceed through the briefing.



This slide depicts our working group charter. We were able to make substantive progress on all three objectives.

Our first task was to come to a common understanding about where capabilities based planning (CBP) applies to operational planning, if at all. Our hypothesis going in was that CBP would apply to course of action development, particularly with respect to grouping forces into capabilities packages. We validated this hypothesis over the course of the workshop.

The key issue was to determine how capabilities packaging might be employed in a *practical* and *standard* way across the combatant commands. It is one thing for a particular combatant command to group different forces together and call that grouping a capabilities package. It is another – and far more difficult – thing to come up with a set of standard, DoD-wide "templates" for capability packages.

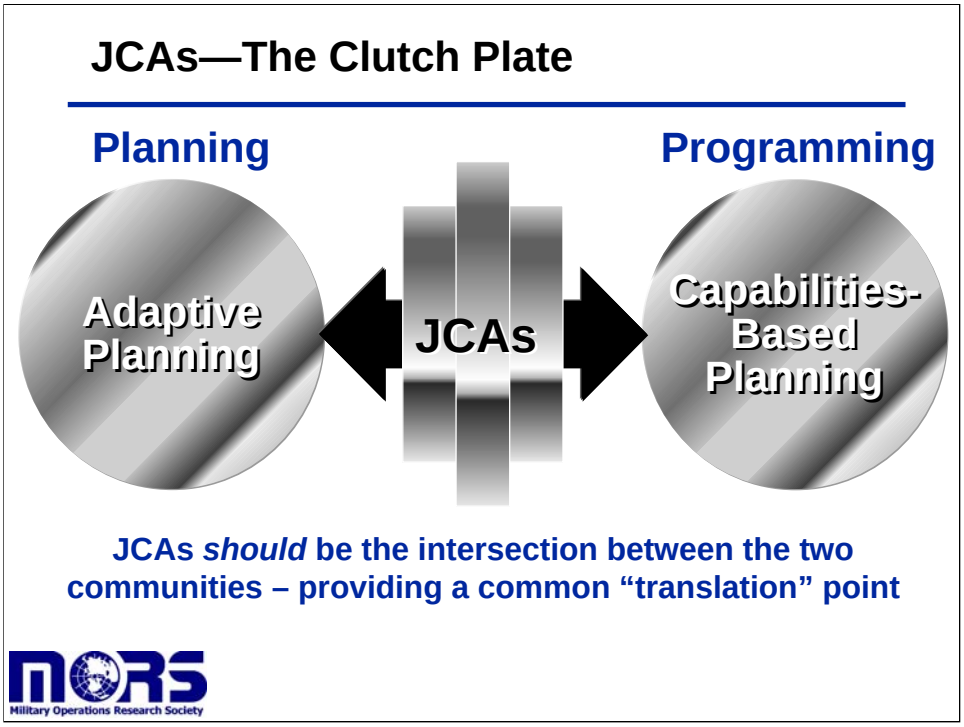
With regard to the second point, there are really two issues at stake:

- What should the standard capabilities packages be (and where do they come from)?
- What forces or assets should comprise these packages?

Finally, the last point largely revolves around whether capabilities packaging for course of action development could be accomplished with techniques and technology currently available or would new techniques and technology have to be developed.

To be quite frank, when we designed this workshop, I was skeptical about the prospects of translating capabilities-based planning into something useful for the operational world.

I am pleased to announce that my deepest fears were misplaced and that capabilities packaging is doable – albeit with significant work required yet. The major hurdles are conceptual and cultural. We don't think technology is the limiting factor.



This slide attempts to illustrate how capabilities-based planning is linked to contingency planning (which is subsumed by Adaptive Planning).

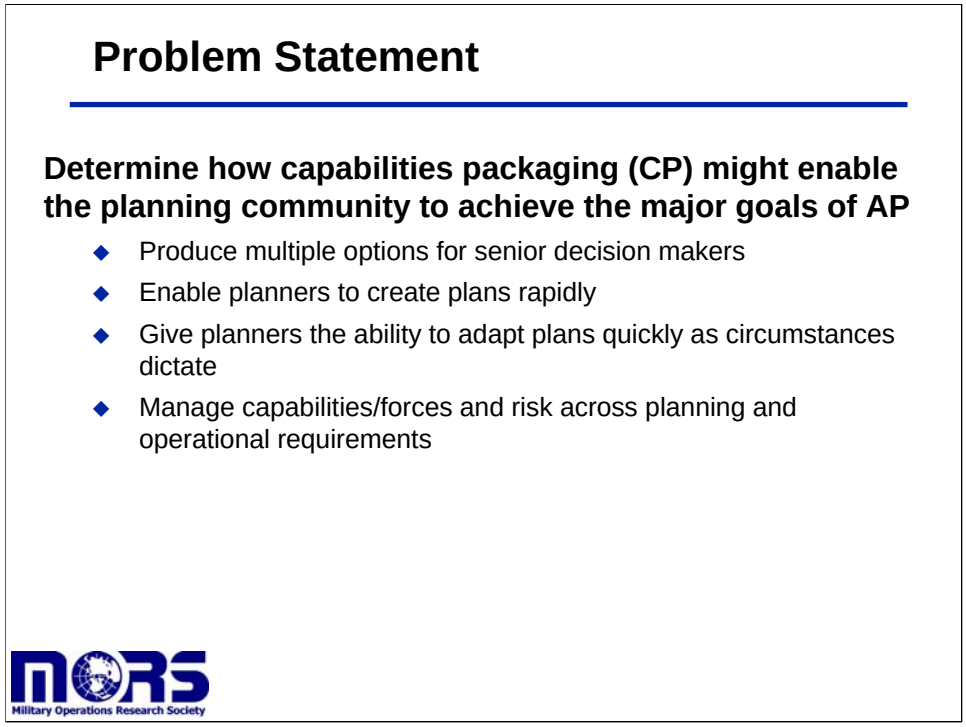
In our working group's view, Joint Capability Areas (JCAs) could and should be the link between contingency planning and CBP.

If JCAs could be developed to a level of detail usable for planning (they currently are not), planning requirements could be directly translated into terms usable by the programmatic community.

JCAs developed at a sufficient level of specificity would become the capabilities around which capability packages would be developed.

Once the combatant commands begin defining requirements for a plan in terms of capability packages, shortfalls could be translated into requirements the programmatic community could use.

Hence our metaphor on the slide. We've depicted JCAs as the "clutch plate" between the contingency planning (Adaptive Planning) and programmatic communities.

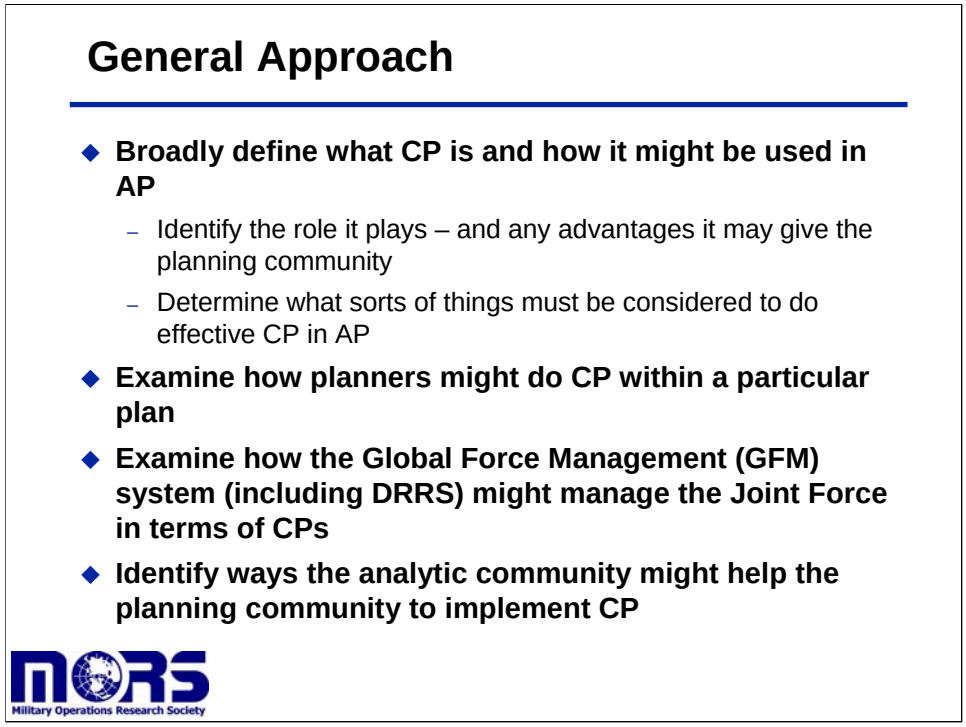


For planners to employ capabilities packaging, the concept has to be practical and useful. Capabilities packaging should enable the DoD to achieve the broad goals of the Adaptive Planning Initiative highlighted on this slide.

To be clear, the problem statement depicted really drives us to thinking about the utility of capabilities packaging in two connected but separate ways. Both of these considerations are critically important to the planning community.

The first consideration is how capabilities packaging can be used as a mechanism for rapidly applying forces/capabilities against the requirements of a *single* plan.

The second concerns using capabilities packages as a mechanism for managing forces/capabilities *across the universe of plans* the DoD produces and maintains.



Our approach flows from the foregoing. Here you see our general approach to conducting the workshop. We broke our effort into the four components depicted by the major bullets on this slide

- First, define capabilities packaging and its relationship to Adaptive Planning
- Next, examine how capabilities packaging enables planning within a single plan
- Then, examine how capabilities packaging could advance GFM across contingency plans
- Finally, identify how the analytic community could help us accomplish the preceding tasks

In truth, we could not cleanly delineate our discussions among the four components. They overlapped with each other, often a great deal. Each succeeding area of exploration invariably ventured into the territory of the next, and the effect was cumulative – so much so that we could afford to devote little time exclusively to the last area of exploration.

Observations

- ***Culturally* we are in the earliest stages of transitioning from force-based planning to planning with CPs**
  - We have a long way to go – our cultural default is back to forces
- **2004 CBP terminology is okay as far as it goes…but needs additional terminology to get at the nuances of operational planning**
- **Even though we had the right people – very competent and knowledgeable – we were hampered by a lack of a common language for CP**
  - That was a valuable insight…while we got off to a good start, there is much yet to be refined

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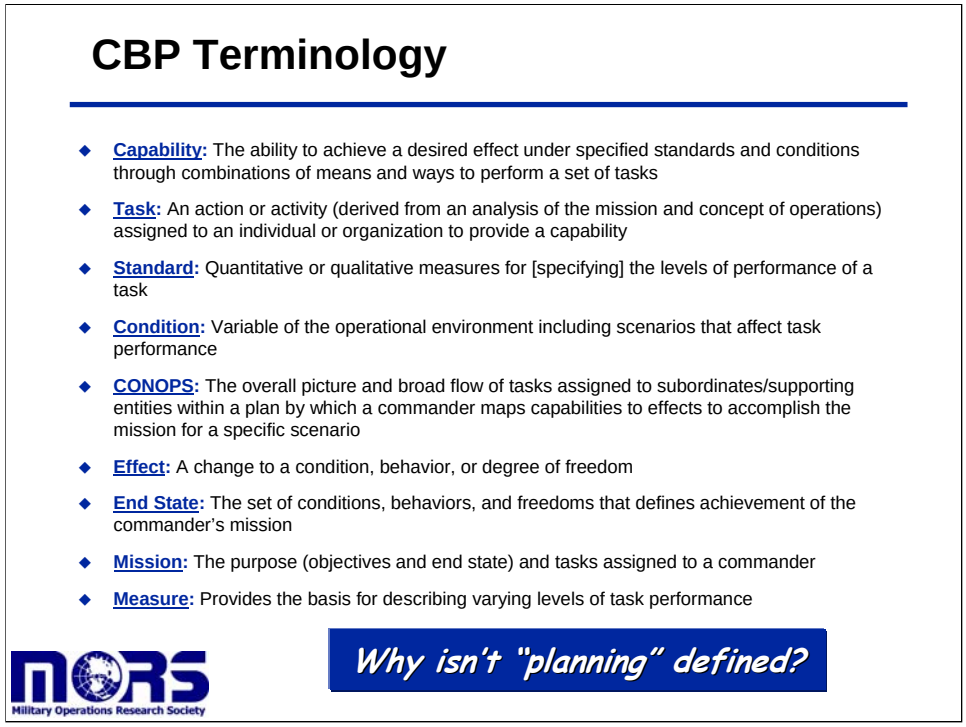
Before turning to the details of the workshop, it is worth dwelling on three broad observations.

First, since Napoleon's time, planners have built plans around forces. Experienced commanders and planners are so familiar with the capabilities of particular forces or weapons systems that they automatically translate forces or systems into capabilities and vice versa.

- In short, their cultural predisposition is to see capabilities packaging as something imposed on them by bean counters in Washington.
- Many planners don't appreciate that the DoD is being driven inexorably to capabilities packaging by current operational requirements.
- In the past, planners could assume that the entire force pool would be available for contingency planning during a 2-year cycle. Force apportionment tables divided up the pie, and planners assumed that they would get what was apportioned to their COCOM when it came time to execute a plan. This is no longer the case.
- A very large portion of the force is now rotating in and out of ongoing operations – and will continue to do so for the foreseeable future. We must assume that over a planning cycle a considerable portion of the force will be committed and not available at all. Moreover, who is available will be continually changing. Therefore, we must develop a force management system that accounts for the dynamism of the force pool and allows us to manage requirements when preferred forces are not available. We need a system that will allow us to quickly identify alternative forces/capabilities that can achieve the commander's objectives while accounting for changes in the risk equation.
- Changing the historical mindset of planners to adjust to this new reality will take time.

Second, capabilities-based planning conceptual work needs significant expansion to account for the needs of the contingency planning community. Most importantly it needs to expand the JCAs to greater levels of specificity. Even Tier 2 JCAs are too broad in scope to be useful to planners. To be useful, the JCAs would have to be expanded to a detail of "Tier 3" or "Tier 4" (which has yet to be defined).

Third, our going in terminology proved to be inadequate for the discussion. Even though we were using the same terms, we often found ourselves talking past each other. Either we used the same words in different ways or the words we used could not express subtleties critical to the discussion. As a result, we were driven to invent the (admittedly awkward) terminology you will see in succeeding slides.

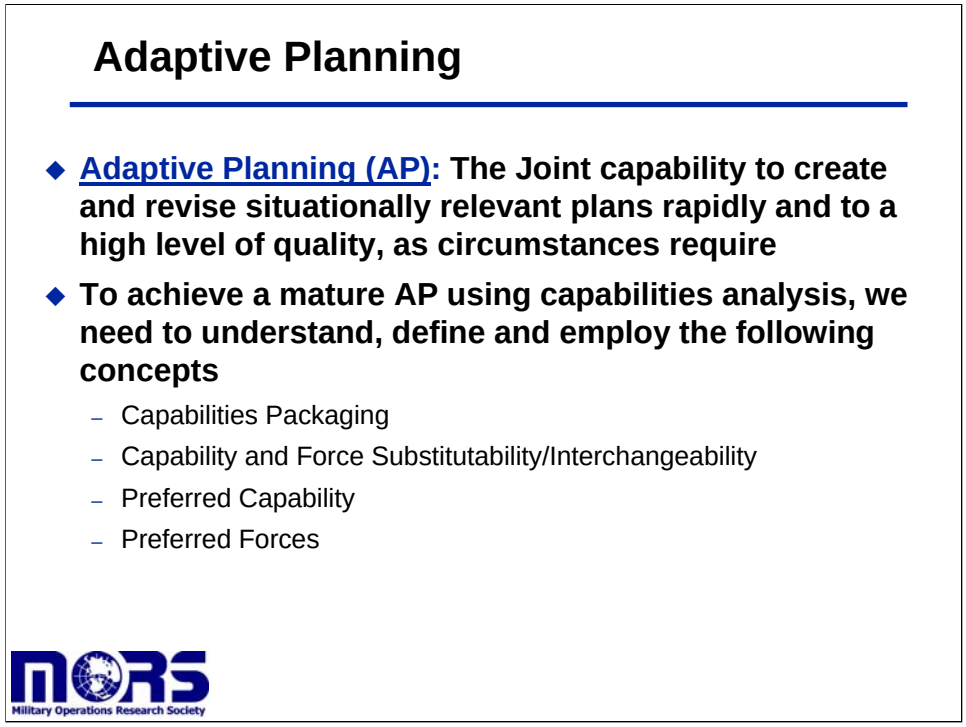


We were asked at the beginning of the workshop to review the CBP terminology from the 2004 MORS conference depicted on this slide.

While we have quibbles with some of the definitions, we were particularly struck by the fact that "planning" is not included on this list.

It strikes us that in attempting to define this word we might gain important insights into how the operational and analytic communities each understand the word – and those understandings may not be exactly the same.

We recommend incorporating our definition of adaptive planning along with the capabilities packaging lexicon our working group developed during the workshop. We'll cover the key terms in that lexicon over the next few slides.



As I just mentioned, we concluded in our working group that the terms on this slide should be incorporated into the capabilities-based planning lexicon.

The planning community has been using the definition for Adaptive Planning displayed here for over two years. We commend it for your use.

If we ever hope to use capabilities-based analysis in Adaptive Planning, we will need to come to an agreement across the planning community about the meaning and use of the terms identified in the second major bullet. We will need to rigorously define not only them, but also the terminology discussed in subsequent slides.

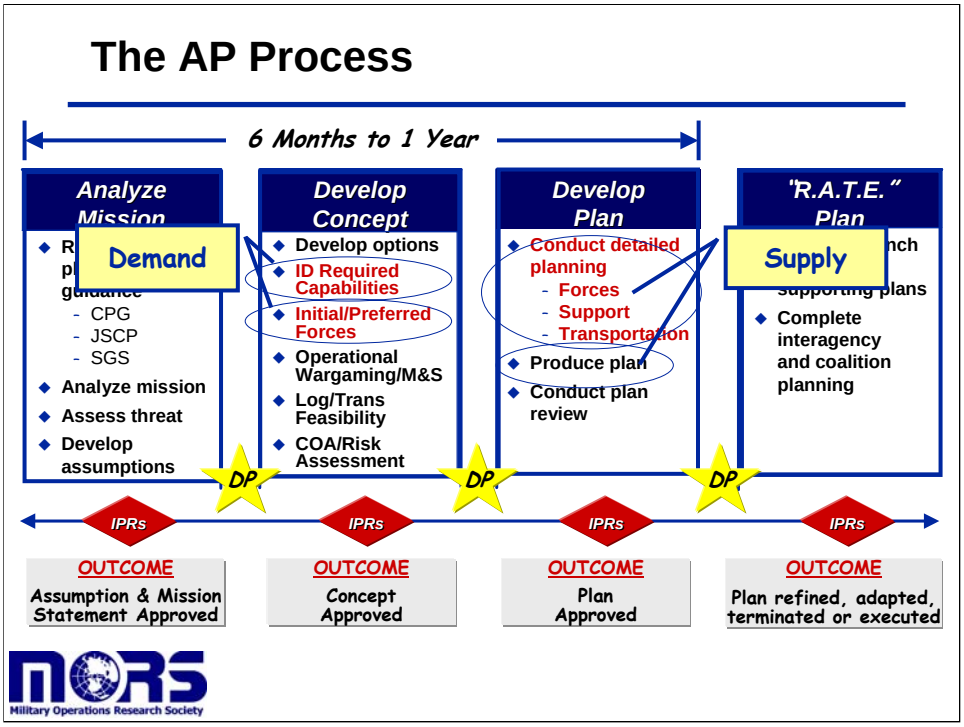
We believed, as we were designing the workshop, that the terms on this slide would be sufficient for our discourse. For reasons that will be related in subsequent slides, they were not.

Capabilities packaging is crucial to injecting capabilities thinking into the AP process. We believe a capabilities package needs to be tied to a JCA at a level of fidelity useful to a combatant command or JTF-level planner. The level of fidelity needed is currently greater than established JCAs can provide.

A capabilities package is comprised of a collection of organizations or systems that provide a capability to achieve a desired effect or accomplish a designated task or mission. As we progressed through our discussion we found that we kept talking past each other because capabilities packaging plays different functions as one progresses through the planning process. In the early stages we use capabilities packaging in a demand function. Later we employ it to reflect the supply function.

In our view, capabilities packaging is the relatively easy part of the equation. What will be more difficult to develop are the substitution or interchangeability rules for capabilities or forces. In our initial thinking substitution rules would apply to *forces within a capability package* – because we would most likely be concerned with replacing one organization or system with another relevantly similar organization or system. In the case of capabilities packages, it makes more sense to talk about interchangeability than substitution because what counts here is the effect achieved or mission accomplished, not the organization or system that achieved it. By definition, the capabilities would be different, and thus the forces or systems would also be different.

Finally, when commanders design a course of action today, they generally have a particular force or kind of force in mind to accomplish each task. These forces are preferred because the commander believes they are most suitable to the task. We believe that if we move to capabilities packaging, commanders will have preferred capability packages for achieving particular effects, and each capability package will have preferred forces comprising them.



As we began our discussion, we immediately ran into problems communicating with each other because the capabilities terminology we started with (identified on the preceding slide) was not nuanced enough to capture important thoughts tied to the sourcing of forces. It became quickly evident that we needed to differentiate between the demand component of force/capabilities sourcing for planning and the supply component.

As commanders develop their concepts of operations (the second stage of planning identified in the slide), they concurrently identify the capabilities/forces required to execute the concept successfully. Typically, they will have done enough preliminary analysis in wargaming the concept to have a pretty good idea of the forces or capabilities they would prefer to use in an operation. This insight comes from years of experience and training. Because they have the situational context and understand implicitly the operational requirements and which forces can fulfill them, they can readily identify organizations or groups of organizations that can provide the capabilities they need.

Typically commanders are provided a set of forces with which to *plan* (called apportioned forces). They are *generic* units, not real units with actual unit designators (e.g., a generic mechanized infantry division vice the 4th Infantry Division (Mech)). If the commander needs a type of unit or capability not provided in the apportioned forces, he can always go back to the Secretary or Chairman and ask for it.

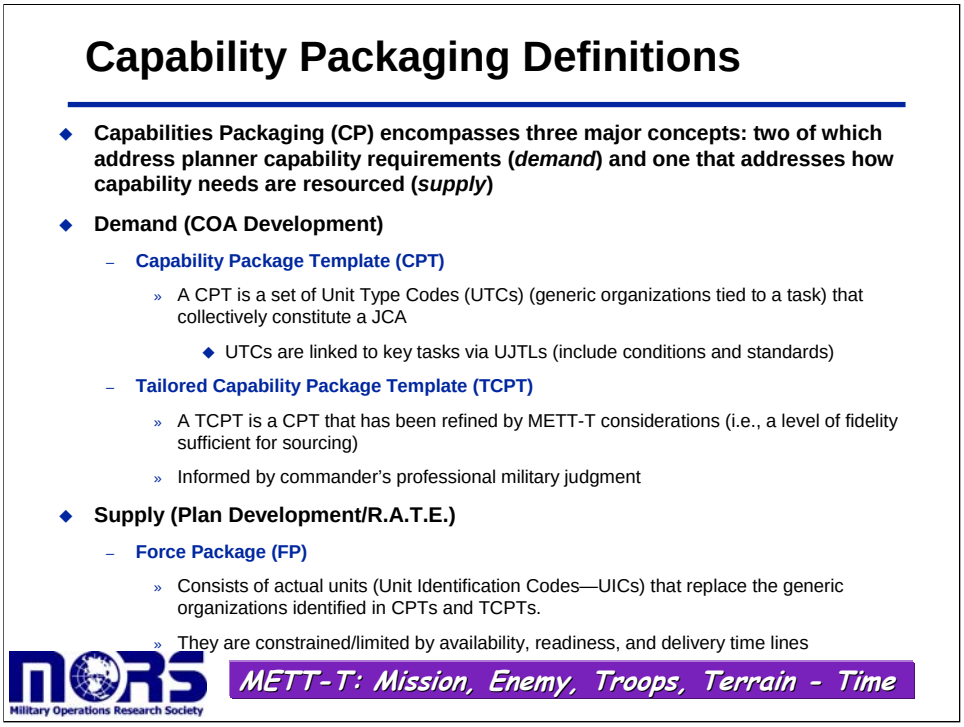
Once the commander has developed his concept, he proceeds into the detailed development of his plan. At this stage he needs to begin planning with actual units because he has to know the unit's actual sustainment requirements and where it will deploy from. This information allows the commander to develop his deployment plan, which (ideally) allows him to get the forces he needs into the theater – and the battle – when his plan calls for them.

As we all know, US forces are committed heavily in current operations and will continue to be for the foreseeable future. That means that forces will continue to rotate in and out of Iraq and Afghanistan. This rotational requirement impacts heavily on contingency plans. If the plans are to be kept up to date (which is central to the Adaptive Planning Initiative), commanders must regularly update their plans with the forces/capabilities that will be available for the designated planning window.

The implications for capabilities planning, we believe, are pretty evident. On the demand side, we could jumpstart concept development by using standardized, generic capabilities packages that could provide various commonly-used capabilities. Ideally these capability packages could be tied to corresponding Joint Capability Areas.

On the supply side, capabilities packaging could be used as a mechanism for substituting or interchanging one force or capability for another.

The prototype definitions on the next slide flesh out the foregoing discussion.



The definitions presented here attempt to get at the distinction I discussed on the last slide in greater detail. Our initial thinking led us to believe that we need at least two terms for the demand side and one for the supply side.

Demand:

A *Capability Package Template (CPT)* would provide us a generic set of forces with which to *begin* planning. CPTs would be linked to JCAs that apply commonly across all plans. In a mature system, CPTs could be stored in a virtual library commonly accessible to all planners.

A *Tailored Capability Package Template (TCPT)* would be nothing more than a CPT modified for a particular plan incorporating METT-T considerations. The idea here is that planners could take a CPT "off the shelf" and quickly tailor it to the specific needs of a plan. It would, of course, have to be fleshed out in sufficient detail to inform JFCOM/Service sourcing of the plan.

A *Force Package (FP)*, on the other hand, addresses the supply side and the need to identify real forces for the purposes of detailed planning.

A force package would also collectively constitute a capability, but actual forces would be used.

The important point to remember here is that the forces composing an FP would be chosen on the basis of their availability, readiness and delivery timelines.

The Value of Capabilities Packaging

- **Jump starts AP by providing prepackaged templates (requirements) that can be quickly tailored to the needs of the plan**
  - Once templates are created, they can be used by any command – over and over
- **During sourcing, gives commander a vehicle for packaging his force preferences while giving the force provider the flexibility to provide alternatives if the preferred forces are not available**
  - Also gives the planner and force provider greater flexibility as the need to refine or adapt a plan arises
- **Assists planner with visualizing the sequencing of key force packages into the fight**
- **Should link JCAs to plans and execution via UJTLs**
- **Helps the commander articulate capability gaps/excess to inform programmatics – and mitigate risk**

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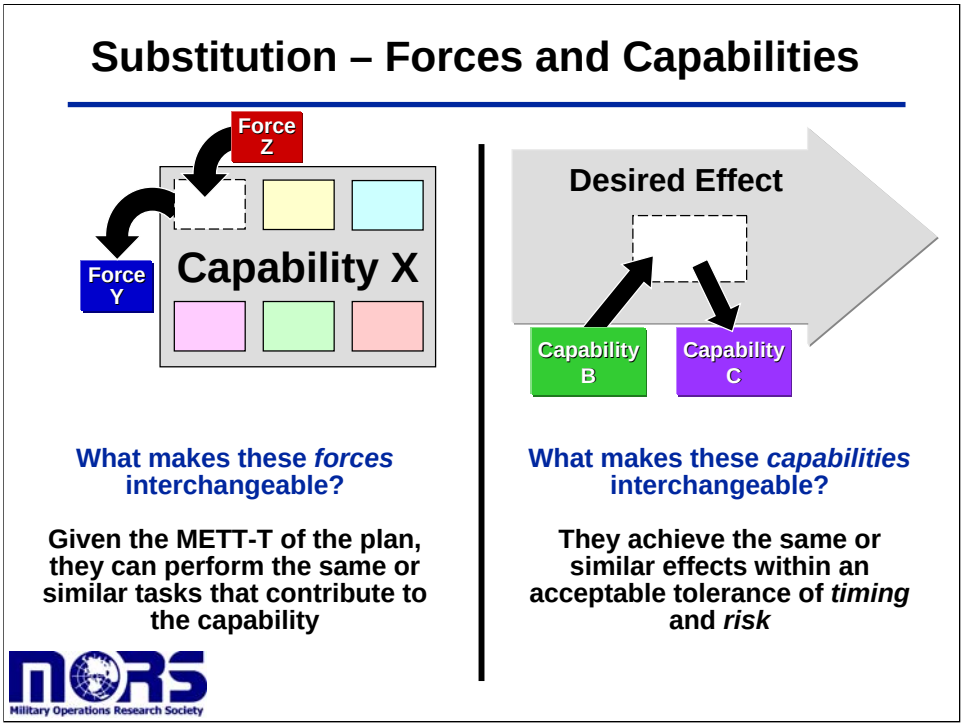
Here we present some of the most significant advantages of using Capabilities Packaging. The bullets on this slide are self-explanatory.

This approach, however, is not without some serious obstacles to overcome. The most serious obstacle will be Discussed on the next slide.

This obstacle has to do with the need to develop substitutability or interchangeability rules for forces within a capability package and for the capabilities packages themselves.



This slide highlights the idea that substitution needs to be addressed at two levels

- *Within* a capability package and
- *Across* capability packages

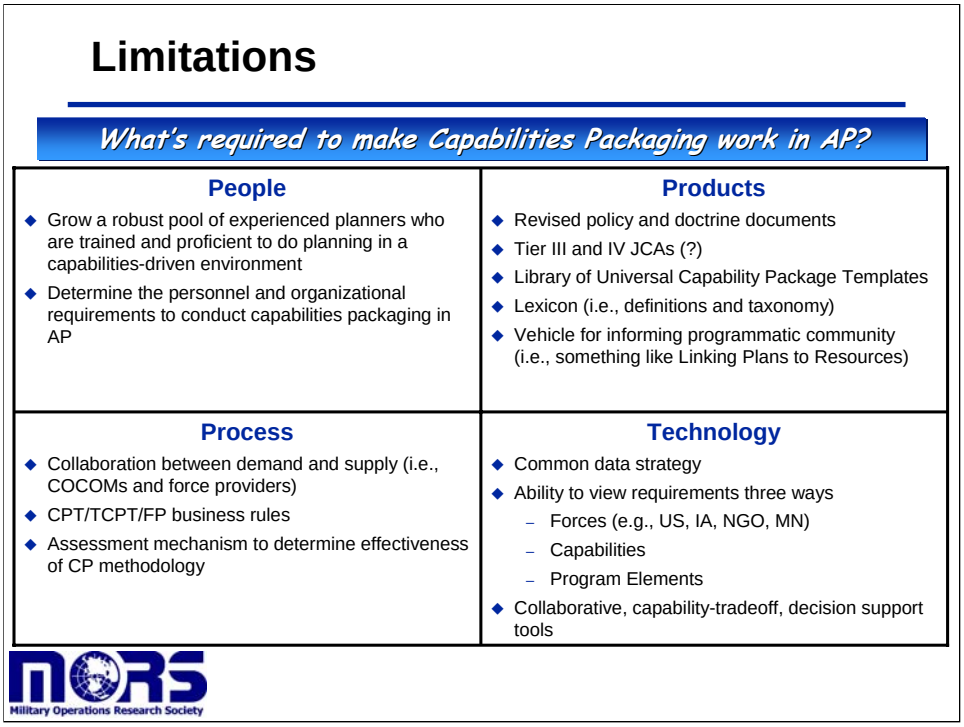
To make capabilities packaging work, we will have to develop commonly accepted business rules for substitutions that work at *both* levels.

At the broadest level, we think substitution or interchangeability will have to follow the broad guidelines we have outlined on this slide.

That said, we have some big questions to answer yet with respect to interchangeability. For example

- Does the DoD need substitution rules for establishing rough interchangeability, or should substitutions be handled through negotiations between the planner and force provider?
- How do you value multi-purpose forces compared to more specialized forces?
- How should readiness, availability and location be factored in?
- How do you establish the linkage between forces required throughout the plan and capabilities packages required for specific phases of a plan?
- What should the capabilities packages enable? The achievement of objectives? Effects? Both?
- How should we account for METT –T when considering substitutions?

These are not simple questions to answer, but they must be answered before we can make capabilities packaging a reality.



There are other things that must be accomplished to make capabilities package work. We have used our pneumonic "P3T" to highlight work to be done. In the AP community we think of P3T as a shorthand for DOTML-PF (doctrine, organization, training, material, leadership, education, personnel, facilities). We will have to work all four quadrants in this chart holistically to achieve the synergy we need.

You will note that most of this chart addresses non-materiel solutions. Foremost on the non-materiel front is the human piece. Systematic training will be paramount to making a new system work. It will take a concerted training effort and, quite frankly, probably a number of years before we can fully convert the planning community over to a capabilities packaging approach to planning. We also believe that Adaptive Planning using capabilities packaging will have significant organizational and attendant personnel management ramifications.

Regarding *process*, collaboration between the demand (COCOMs) and supply (JFCOM/Services) will have to be more extensive – and better – than today. Substitution will require negotiation, and a set of commonly agreed upon business rules would serve the system well. The success of a capabilities packaging system is by no means assured. Accordingly, we'll need an assessment system that transforms lessons learned into business process improvements.

Several *products* are required as well. I've discussed the need for three of them in preceding slides: Tier III/IV JCAs, a common lexicon, and a library of capability package templates. Policy and doctrine will have to be updated as well.

Earlier in the briefing, I mentioned that JCAs could serve as the clutch plate between the planning and programmatic communities. If we are serious about linking capabilities packaging to the broader capabilities-based planning effort across the DoD, we will need to think hard about how we can use capabilities packaging to inform capability requirements in combatant command integrated priority lists (IPLs). It strikes us that linking capabilities packaging to the Department's Linking Plans to Resources (LPTR) effort might be of benefit.

Perhaps of greatest interest to this body are the technology requirements to ensure success. Without a common data strategy, we will fall well short of the needs for capabilities packaging. First we need to be able to aggregate and disaggregate unit data from the individual to the largest formations. At each level of aggregation, we should be able to assess readiness, availability, location and tasks the organization can perform, and capabilities it can perform. This requires all four services to come together and revamp their data so the data can be shared laterally and hierarchically.

As we develop and/or refine applications that allow us to capabilities package, we will need to retain the capability to view our requirements in the three ways indicated in the chart. Doing so will allow for a clear translation of requirements from the planning community to the programmers and back.

Finally, we will need decision support tools that allow us to make trades between capabilities, both for planning and for programmatic purposes.

Conclusion – Major Take-Aways

- **JCAs should be the clutch plate between operational planners and the programmatic world**
- **Current capabilities language is inadequate to address key AP concepts**
  - Had to create additional, nuanced terms and definitions to advance the discussion
- **We *assess operational risk* at the forces level, but *mitigate risk* at the capability level**
  - No matter how committed the DoD is to planning using capabilities packaging, at some point operational planners will have to look at forces
- **Need a *collaborative* suite of tools to tee-up capability tradeoff decisions in plan development**
  - BUT technology can only take us so far…
  - Ultimately, human collaboration and professional judgment has to be the arbiter

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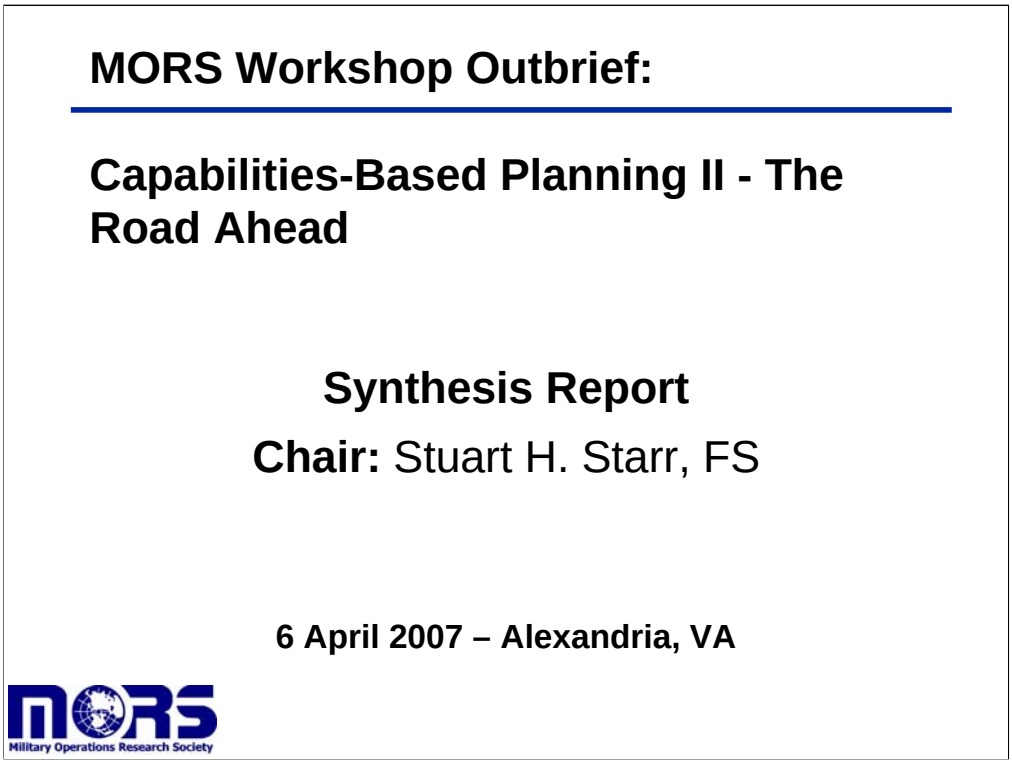
Here is a highlight of the four key insights we gained from this workshop.

First, capabilities packaging has to be anchored to DoD-accepted doctrinal concepts. JCAs, at this point, appear capable of filling this role. Even though we have a long way to go with developing them at the right level of detail, they are accepted by both the planning and programmatic world and provide us a mechanism from translating operational requirements to capabilities-based planning language. We would strongly encourage the Department to take these JCAs to the next level of detail required by the planning world.

Second, as highlighted in earlier slides, we need to develop a robust lexicon for capabilities packaging that serves the needs of all members of the planning community. What we offered in this briefing is admittedly only a start. Investing considerable intellectual energy into this effort could result in a big payoff.

The third point highlighted here is critical to understand. Ultimately we have to examine the components of capability packages – forces and systems – through the lens of METT-T for an operation to understand whether the commander has what he needs to accomplish his mission. Risk is ultimately tied to the readiness and availability of particular organizations for an assigned mission. The point here is that capabilities packaging can only take us so far. What capabilities packaging does provide is a way to widen our aperture when we look at mitigating risks incurred by having to make substitutions for forces that are unavailable – or inadequate – for the mission. In such cases, planners are not limited to a one-for-one replacement of like type units. Whatever accomplishes the particular mission or achieves the desired effects under the designated operational conditions (METT-T) could be considered a suitable alternative.

Finally, we have no viable decision support tools at the moment to help us make hard capability-tradeoff decisions – both in planning and programmatics. Here I want to emphasize the word *support* in decision support. We think human judgment will remain essential to these types of decisions. The tools we create have to tee up the considerations and metrics most important to senior decision makers in the Department. That's about as far as technology can take us … but even that far would be a big step forward.



On 4-6 April 2006, MORS convened a workshop on Capabilities-Based Planning at Booz Allen Hamilton, Tysons Corner, Virginia. The workshop was sub-titled *Identifying, Classifying and Measuring Risk in a Post 9-11 World*. This report provides the perspectives of the Synthesis Working Group on the deliberations.

Agenda

- **Panel Goals, Composition and Plan of Attack**
- **Insights on Nature of the Problem**
- **Selected Take Aways**
- **Final Observations**

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The Synthesis Panel report consists of four sections. As a context, the first section identifies the goals, objectives, and composition of the Synthesis Panel.
The second section summarizes insights on the nature of the problem that the Synthesis Panel derived. These insights were developed from the remarks of the plenary speakers, the internal discussions of the Synthesis Panel members, and the deliberations of the other six panels.
The third section formulates selected take aways based on the deliberations of the workshop working groups.
The final section briefly summarizes key observations and conclusions.

Synthesis Panel Goals, Objectives

- **Goals**
  - Provide an overview of the entire Workshop
- **Objectives**
  - Based on the presentations at the Plenary
    - Identify key challenges
    - Capture the state-of-the-practice
  - Clarify the nature of the problem by conducting internal panel discussions
  - Derive key insights from the deliberations of the individual working groups
  - Characterize the progress and provide observations on useful next steps

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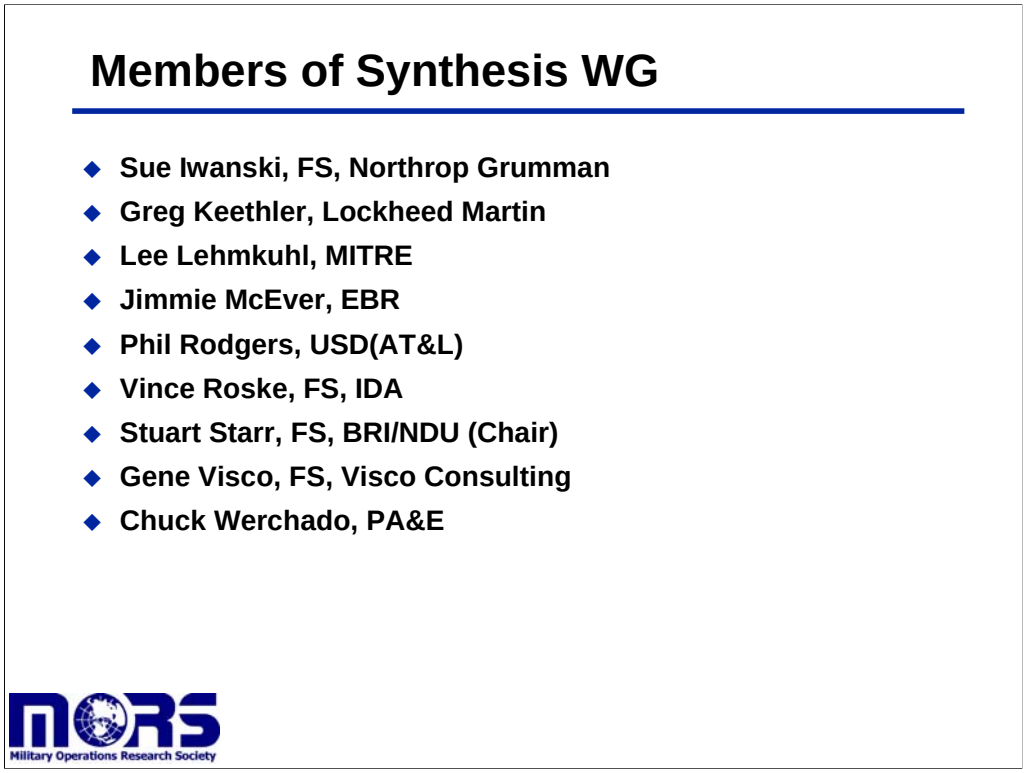
The Synthesis Working Group had one major goal: To develop a holistic perspective on the workshop plenary and working group deliberations.

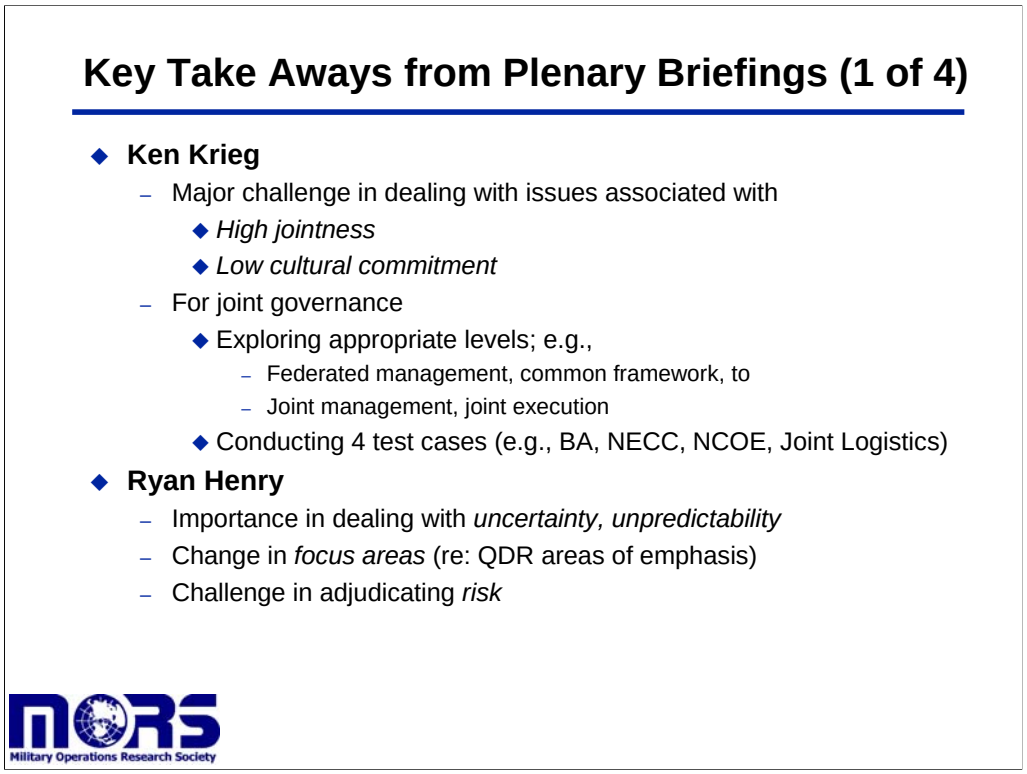
Consistent with that goal, the Synthesis Group pursued four supporting objectives. First, based on presentations at the Plenary, it sought to identify key challenges and to capture the state of the practice. Second, it sought to clarify the nature of the problem by conducting internal panel discussions. Third, it derived key insights from the deliberations of the individual working groups. In this objective, it focused on key, cross-cutting themes. Finally, it characterized the progress made by the workshop and provided observations on useful next steps.



In order to cover all the issues of interest, balance was sought among the members of the Synthesis Group. Thus we had roughly equal representation from members of government (i.e., USD(AT&L), OSD PA&E), Federally Funded Research and Development organizations (i.e., MITRE, IDA), defense industry (i.e., Northrop Grumman, Lockheed Martin), and consulting organizations (i.e., BRI, Visco Consulting). It is notable that four of the members of the Synthesis Working Group were Fellows of MORS.

As many of you know, members of the Synthesis Working Group have a day job and a night job. During the day, each member of the working group is assigned to one of the six mission oriented panels. During off-hours we meet to share insights and develop a holistic view of the subject.

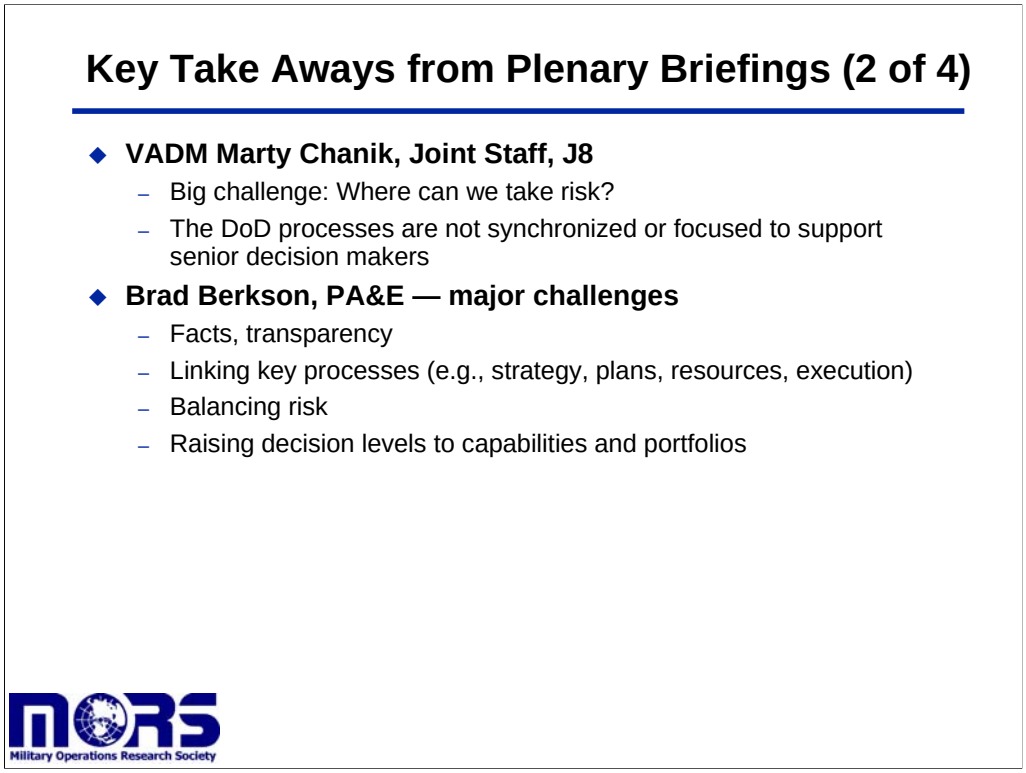
During the initial plenary session, it was suggested that the other working groups employ a very deliberate, systematic process in their deliberations (e.g., refine strawman capability objectives, compare these objectives to projected capabilities for key institutional processes to identify needs, assess these needs to identify and explore the highest priority activities). However, since most working groups elected to adapt this process to their own interests and styles, it compelled the Synthesis Group to be very tactical in its operations (i.e., it responded to the *crisis de jour*).



During the plenary session, the workshop attendees received a broad range of keynote and descriptive presentations. Those presentations set the tone for the deliberations of the workshop and provided some key insights. The following discussion of plenary presentations is not meant to be comprehensive; however, it does try to highlight key insights that drove the deliberations of the workshop participants.

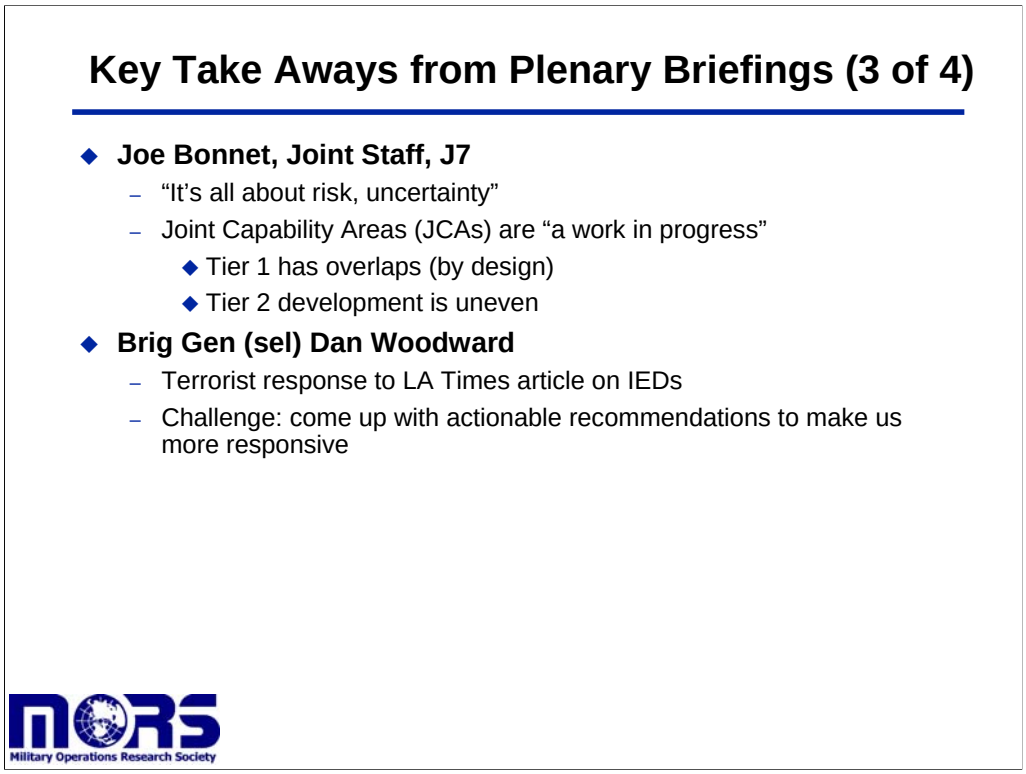
The initial keynote presentation was provided by Ken Krieg, USD(AT&L). He presented a framework that highlighted two key axes: jointness and cultural commitment. He emphasized that one of the major challenges facing the community dealt with issues in the quadrant characterized by high jointness and low cultural commitment (e.g., joint command and control issues). Subsequently, he addressed the question about the appropriate level of joint governance for key programs. He identified a range of levels that extended from federated management and common framework to joint management and joint execution. He observed that OSD was about to undertake four test cases to explore the appropriate levels of joint governance. These four cases included Battlespace Awareness (BA), Net Enabled Command Center (NECC, formerly referred to as Joint Command and Control), Net Centric Operational Environment (NCOE), and Joint Logistics.

He was followed by Ryan Henry, PDUSD(Policy). During his presentation he emphasized three key points. First, the DoD is confronted with considerable uncertainty and unpredictability. Thus, the planning process must recognize those factors and be prepared to deal with them. Second, based on the findings of the Quadrennial Defense Review, the DoD must move beyond traditional challenges to confront irregular challenges (e.g., terrorists and insurgents), catastrophic challenges (e.g., rogue nations or non-state actors with weapons of mass destruction; ballistic missile attacks), and disruptive challenges (e.g., shaping nations at strategic crossroads). In order to respond adequately to these emerging challenges, the DoD faces the need to quantify and adjudicate risk.



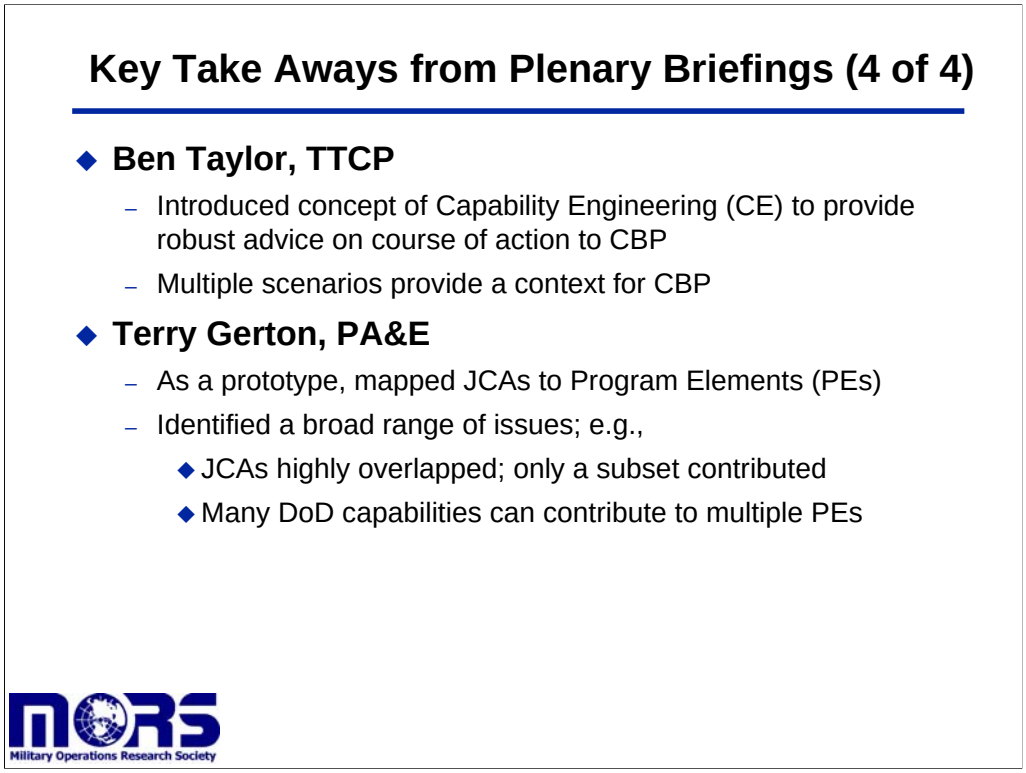
Many of these points were echoed by the next speaker, VADM Marty Chanik, J-8, Joint Staff. He reiterated that the big challenge was to address the question "Where can we take risk?" He further stated that the key DoD processes (e.g., defense acquisition, JCIDS, PPBES) were not synchronized adequately to support senior decision makers.

Similarly, Brad Berkson, PA&E, addressed many of these key points. He concluded his presentation by citing four major challenges. First there is a need to achieve a common appreciation of the facts and make them transparent to the community (e.g., the analytic agenda). Second, there has been a major effort to link the key processes that drive the defense institution (e.g., strategy, plans, resources, execution). However, work remains to synchronize them effectively. Third, the DoD faces extremely diverse threats and limited resources. Thus, it faces the challenge of balancing risk among those diverse threats. He completed his challenges by observing that decision makers have traditionally focused at the platform level. However, to respond to the changing defense landscape, it is important to focus the attention of senior decision makers to the realms of portfolios (e.g., the systems of systems level) and capabilities.



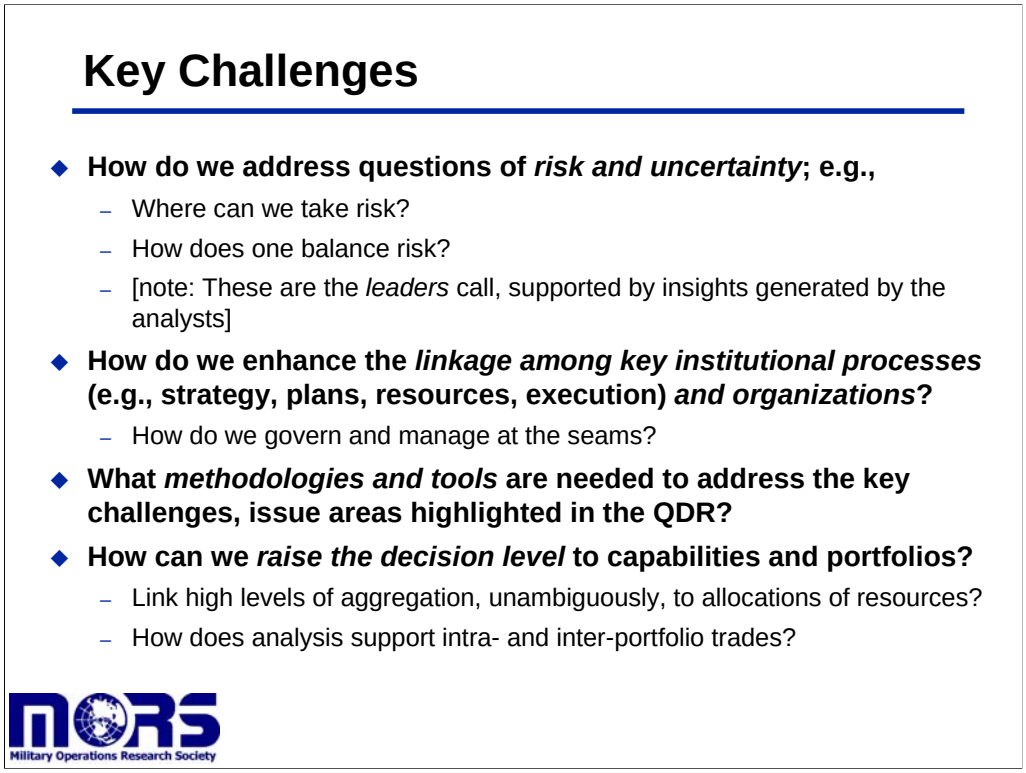
Subsequently, Joe Bonnet provided the perspective of the Joint Staff, J7. He, too, noted that "It's all about risk and uncertainty." The bulk of his presentation was devoted to a brief characterization of the emerging Joint Capability Areas (JCAs). He observed that JCAs are a "work in progress." The twenty-one elements of Tier 1 have overlaps, by design. Currently, there are hundreds of Tier 2 elements, but their development is still uneven.

The Sponsor's remarks were provided by Brig Gen (Select) Dan Woodward of the Joint Staff. He recounted a recent article where the Los Angeles Times provided a detailed discussion of recent actions to counter Improvised Explosive Devices (IEDs). Within less than a week, terrorists had developed and disseminated detailed actions to respond to each of those actions. General Woodward noted (tongue in cheek) that the terrorists did not need a JCIDS process to guide them in their response. However, he felt that it highlighted a key challenge to the DoD: to come up with actionable recommendations to make us more responsive to the evolving threat.



The workshop was unusual for MORS because it had substantial representation from allied nations who participate in The Technical Cooperation Program (TTCP). Their spokesman, Ben Taylor, UK, discussed how those nations are embracing and tailoring capability based planning (CBP) to meet their needs. He observed that they have introduced the concept of Capability Engineering (CE) to provide robust advice on establishing a course of action for CBP. Similarly, he noted that non-US TTCP nations have developed and employed a range of scenarios to provide a context for CBP. This issue was discussed at length during the workshop.

To clarify the state of JCAs, Terry Gerton, PA&E, recounted a recent prototype activity that she undertook. In this study, she mapped JCAs to Program Elements (PEs). As a result of this prototype she identified a broad range of issues. For example, she noted that the Tier 1 JCAs were highly overlapped and only a subset of them were relevant to her study. Furthermore, how to map PEs into the Tier 1 JCAs is ambiguous. Thus, it is currently difficult to provide a clear picture of the resources that are being devoted to specific JCAs.



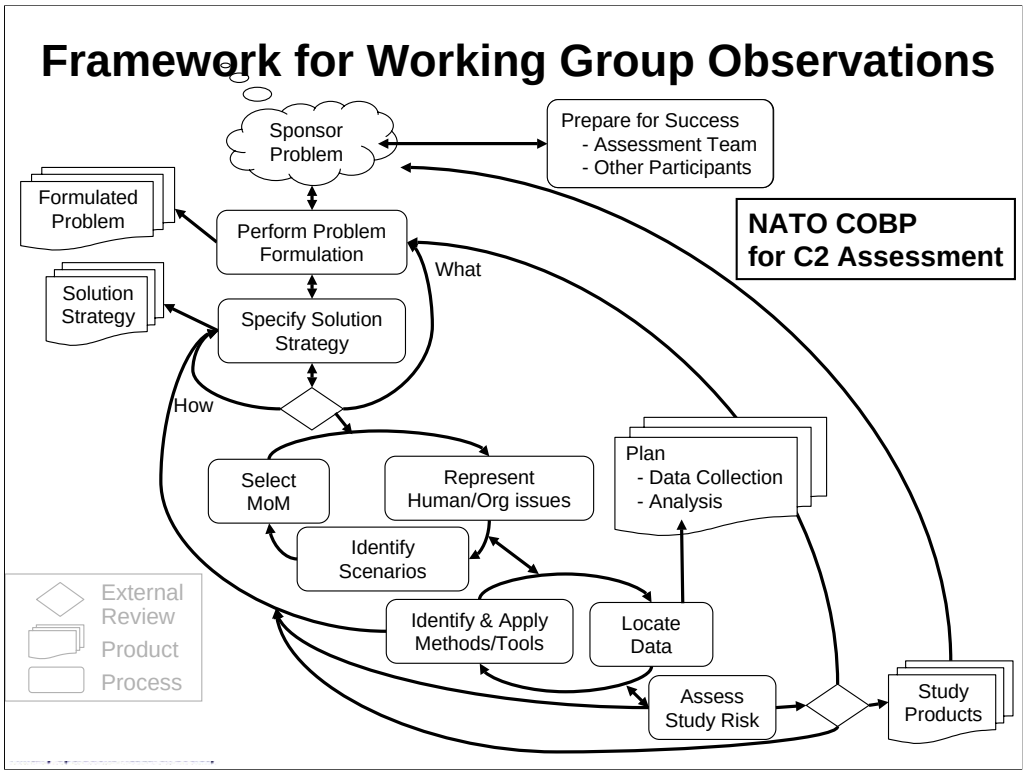
As one of the assignments for the Synthesis Group, we were asked to identify the key challenges that emerged from the plenary session as a charge to the workshop participants. Based on that input, we formulated four key challenges.

First, and foremost, the workshop participants were asked: How do we address questions of risk and uncertainty? Specifically, we were asked where we can take risk and how does one balance risk. It was emphasized that the answers to these questions will be the call of senior decision makers. The role of the analyst is to generate insights to help them make those decisions.

Second, how do we enhance the linkage among key institutional processes and organizations. In particular, we must clarify how to orchestrate the key institutional processes of requirements (JCIDS), acquisition, and PPBES. This forces us to address the question: "How do we govern and manage at the seams?"

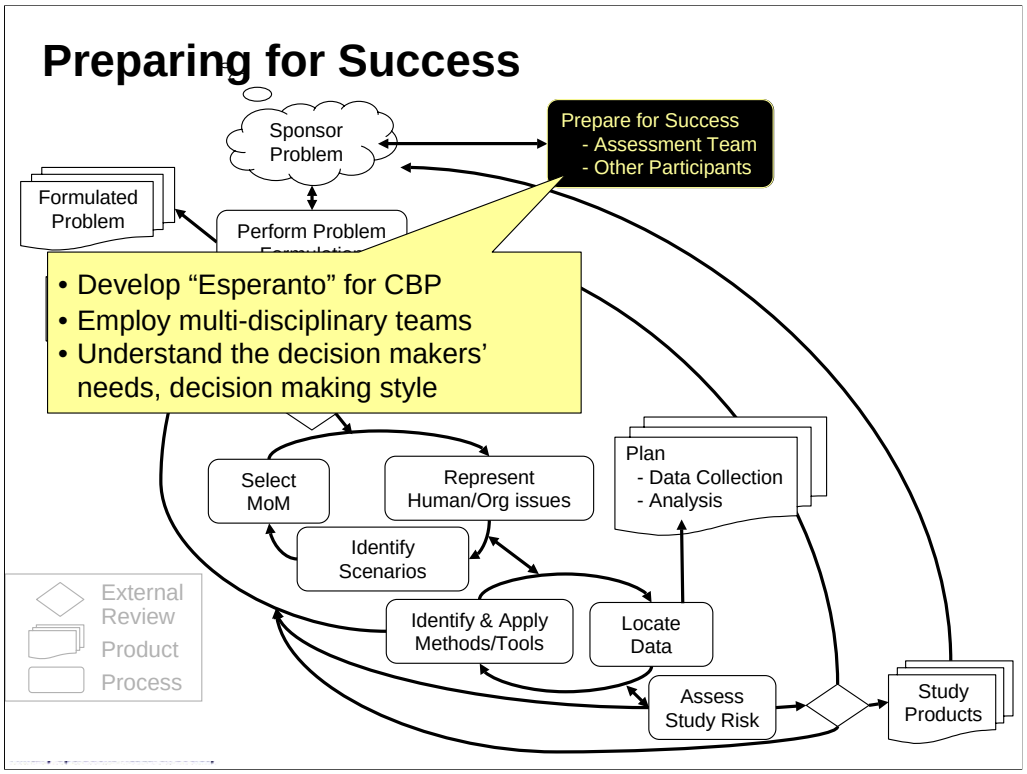
Third, as emphasized by Dr. Henry, the QDR is compelling us to address issues where we have limited methodologies and tools (e.g., dealing with terrorism, "loose WMDs," shaping organizations at strategic cross-roads). We need to identify and explore those methodologies and tools.

Finally, we were challenged with helping senior decision makers address issues at the level of capabilities and portfolios, vice at the system level. This poses several key questions. As suggested by Terry Gerton's prototype study of JCAs and PEs, how can we link high levels of aggregation (JCAs), unambiguously, to allocations of resources (at the PE level)? In addition, how can analysis support intra- and inter-portfolio trades?

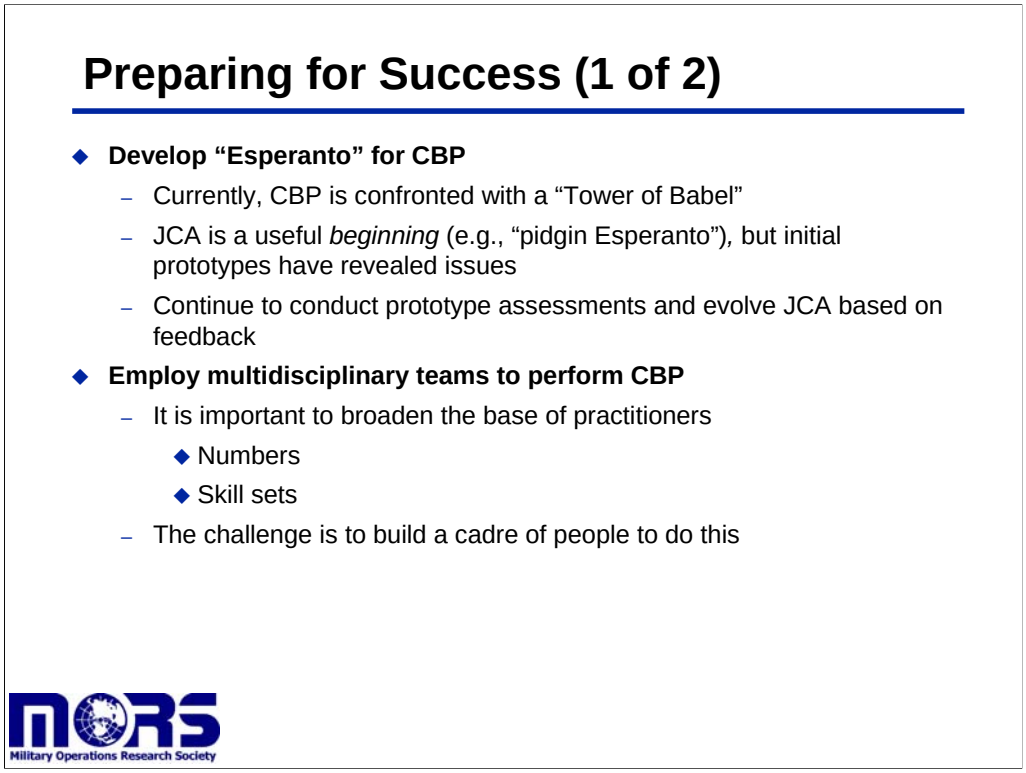


The Synthesis Group adopted the NATO Code of Best Practice (COBP) as the framework for capturing the insights from the individual working groups. This decision was taken for several reasons. First, the other working groups each explored key aspects of the assessment process for their domain of interest (e.g., JCIDS, acquisition, PPBE, QDR, adaptive planning). By employing the COBP it made it easy to compare and contrast their results for key assessment functions.

Second, the ASD(NII) has mandated that the NATO COBP for C2 Assessment be employed to support future C2 assessments. Since the role of the Synthesis Group was to perform a "meta" assessment, it seemed appropriate to adopt this process as its framework.

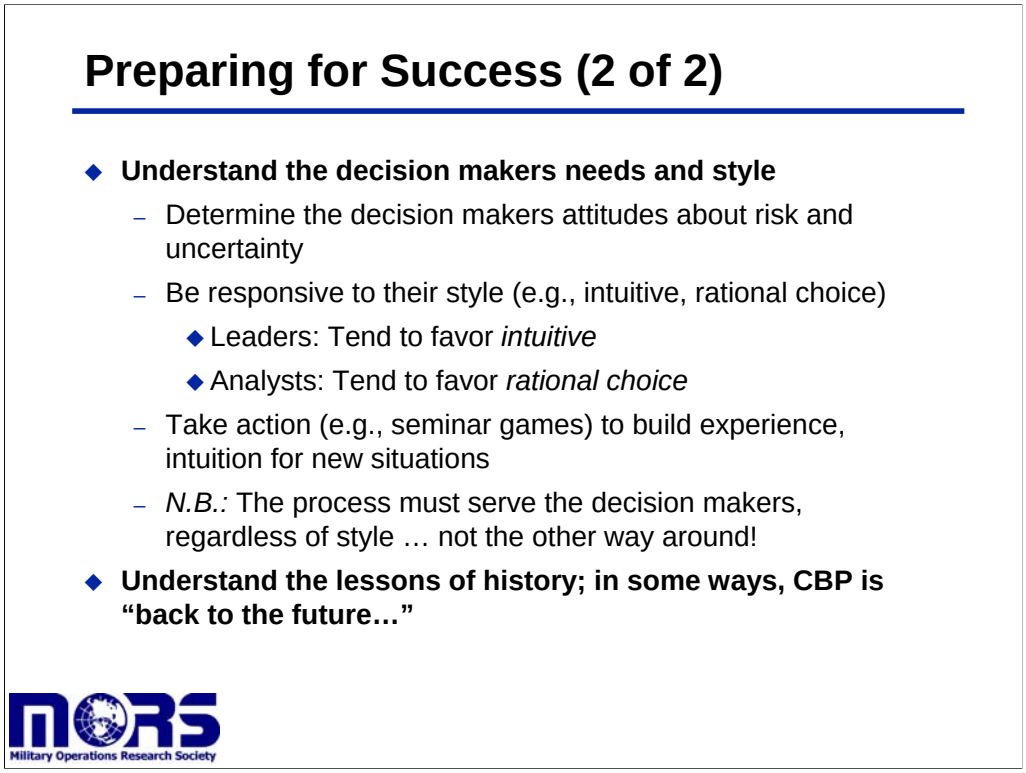


The initial function in the COBP is to *Prepare for Success*. The Synthesis Group identified three key areas that were discussed in the break out groups that related to that function: 1) Develop "Esperanto" for CBP; 2) Employ multi-disciplinary teams; and, 3) Understand the decision makers' needs and decision making style.



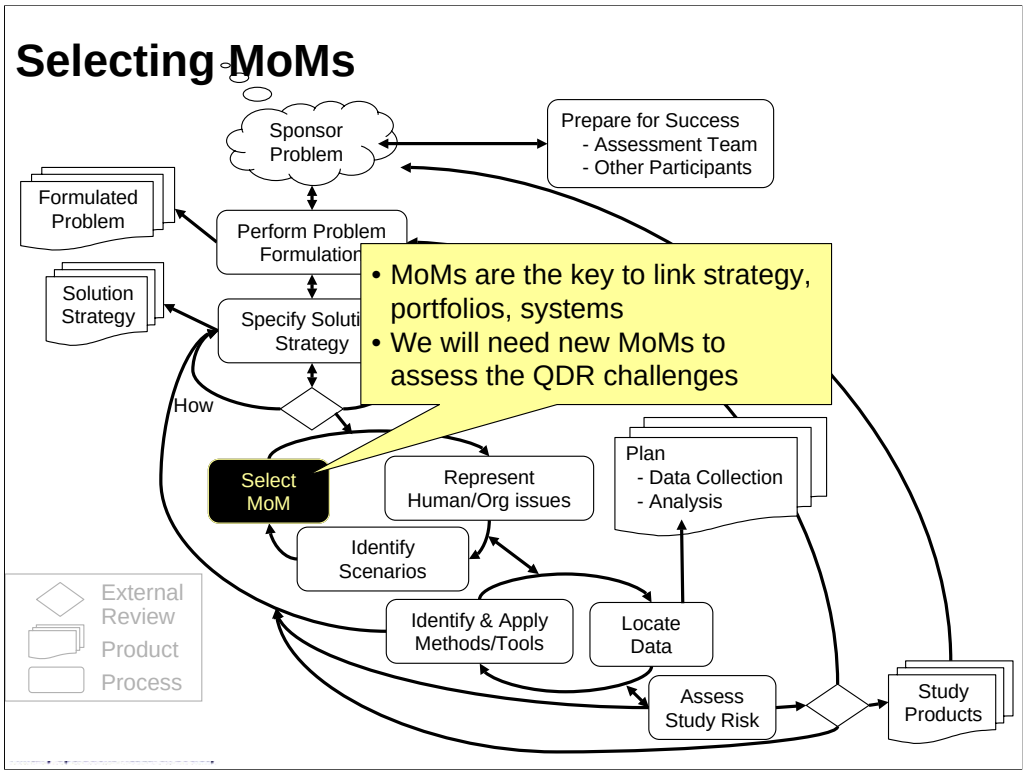
In the need to develop "Esperanto" for CBP, several groups observed that the CBP community is currently confronted with a "Tower of Babel." They observed that JCA is a useful beginning with the current version serving as "pidgin Esperanto." However, initial prototypes have revealed issues (e.g., the inability to map JCAs unambiguously to PEs). Thus, several groups recommended that prototype assessments should continue to be conducted and that JCAs (at multiple tiers) continue to evolve based on the feedback.

Second, given the diversity of skills needed to perform CBP, it was recommended widely that multidisciplinary teams be assembled for that purpose. Overall, there is a need to broaden the number of practitioners involved in CBP and the skill sets that they bring to the problem. One of the major challenges is to build a cadre of people to do this.



Third, there was near unanimity among the work shop participants that it was vital to understand the decision makers' needs and style. This task has several important implications. First, it is the job of the analyst to ascertain the decision makers' attitudes about risk and uncertainty. The analyst must perform assessments and display those results in a way that reflects those attitudes. Second, one of the working groups spent considerable time discussing the styles of leaders and analysts. They noted that leaders tend to favor an intuitive style (e.g., blink) while analysts tend to favor rational choice (think). One of the major challenges facing decision makers is the nature of the new issues they are being asked to address (e.g., irregular, catastrophic, disruptive challenges). Since they have not confronted these issues before they lack the experience base and intuition appropriate for those issues. Thus, it was recommended that decision makers be exposed to these issues in seminar games (e.g., RAND's "Day After …" games) to build up the requisite experience and intuition for these new challenges. Several of the working groups made an interesting observation about this issue. They noted that the analytic process must serve the decision makers regardless of their style. The analyst must *not* expect the decision maker to adjust to the analyst's preferred style!

Finally, one of the members of the Synthesis Group observed that the focus on CBP is not unique in history. Early SecDef's (e.g., MacNamara) emphasized comparable themes in creating and implementing defense institutional processes. Thus, in some ways, we are "back to the future," where history has a great deal to inform us.



A second issue that was addressed by several working groups involved the question of appropriate Measures of Merit (MoMs). This has been a continuing theme among workshops that MORS has convened over the last fifteen years. It was observed that MoMs are the key to one of the major challenges that the plenary speakers issued to the workshop participants: the mechanism to link strategy, capabilities, portfolios, and systems.

It was also noted that the new QDR challenges compel us to re-conceptualize defense issues. This suggests that we will need to assess new MoMs to address those challenges.

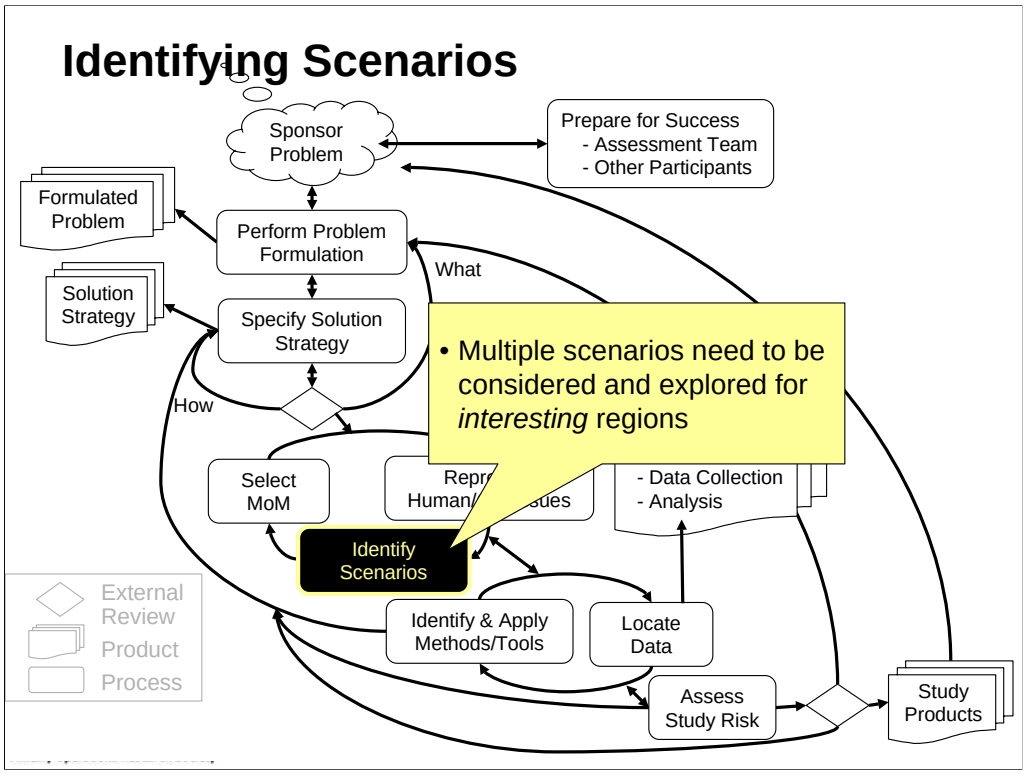
Observations on Selecting MoMs

- **MoMs are the key to linking strategy, portfolios and systems**
  - Strategy -- Measures of Policy Effectiveness
  - Portfolios --
    - Measures of Mission Effectiveness, or
    - Measures of Functional Performance
  - Systems -- Measures of System Performance
- **It is non-trivial to formulate these MoMs and to determine their linkage**
- **We will need new MoMs to assess the QDR challenges**
  - GWOT measures are similar to those used to assess deterrence
  - How do you measure the absence of an event?

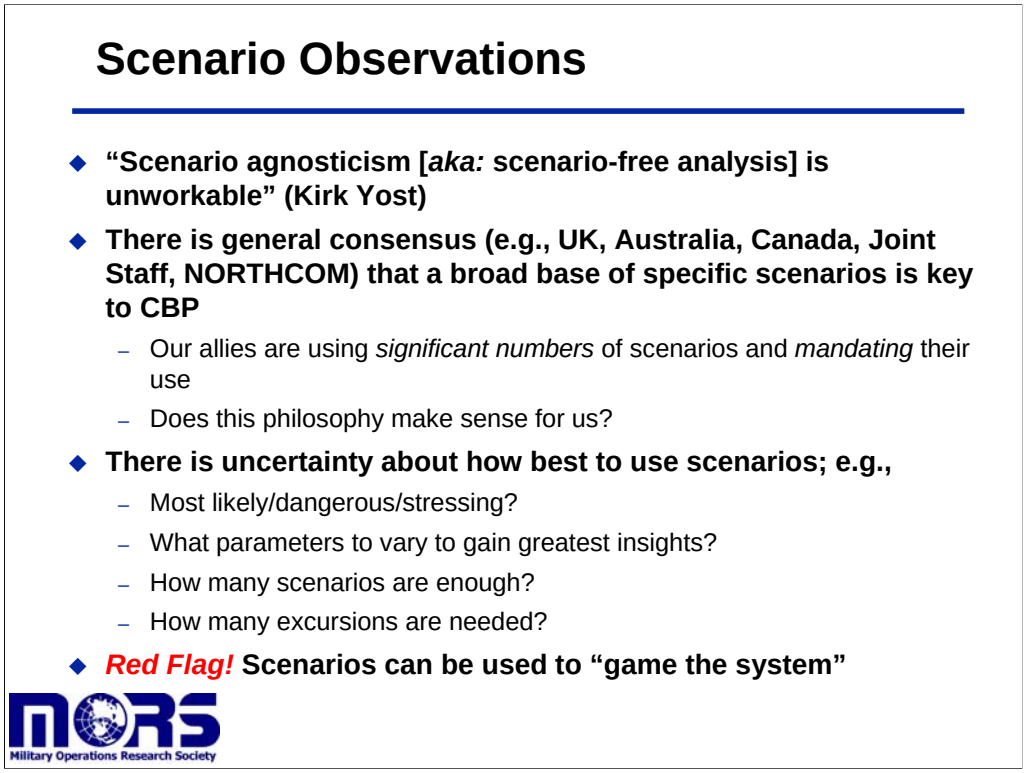
MORS Military Operations Research Society

Several classes of MoMs were cited that are important to the hierarchy of issues. At the strategic (or capability) level, there is a need to evaluate Measures of Policy Effectiveness (MoPE). As an example, in support of stability and reconstruction operations, there is a need to transform a failed state into a successful state. This implies MoPE that characterize progress in security, rule of law, and economic well-being. At the portfolio level, two alternative MoMs are appropriate. For a mission portfolio (e.g., air defense), Measures of Mission Effectiveness (MoME) are needed (e.g., loss exchange ratios), while for a functional portfolio (e.g., battlespace awareness), Measures of Functional Performance MoFP) are needed (e.g., probability of correctly and unambiguously identifying and classifying targets). Finally, at the systems level, there is a need for Measures of System Performance (e.g., accuracy, timeliness). The major challenge is to formulate the MoMs at each level and to establish and assess the relationships among them. It must be emphasized that this is a *non-trivial* undertaking!

Finally, the community must work together to formulate new MoMs to assess the QDR challenges. It was speculated that we might gain useful insights from prior assessments. For example, when we pursued assessments of deterrence, the *absence* of an event was an important MoM. Perhaps measures of that sort are useful in future assessments of the global war on terrorism (GWOT).



The issue of scenarios was the topic of significant discussion in most of the working groups and several plenary presentations. It was stressed that *multiple* scenarios need to be considered and explored for *interesting* regions.



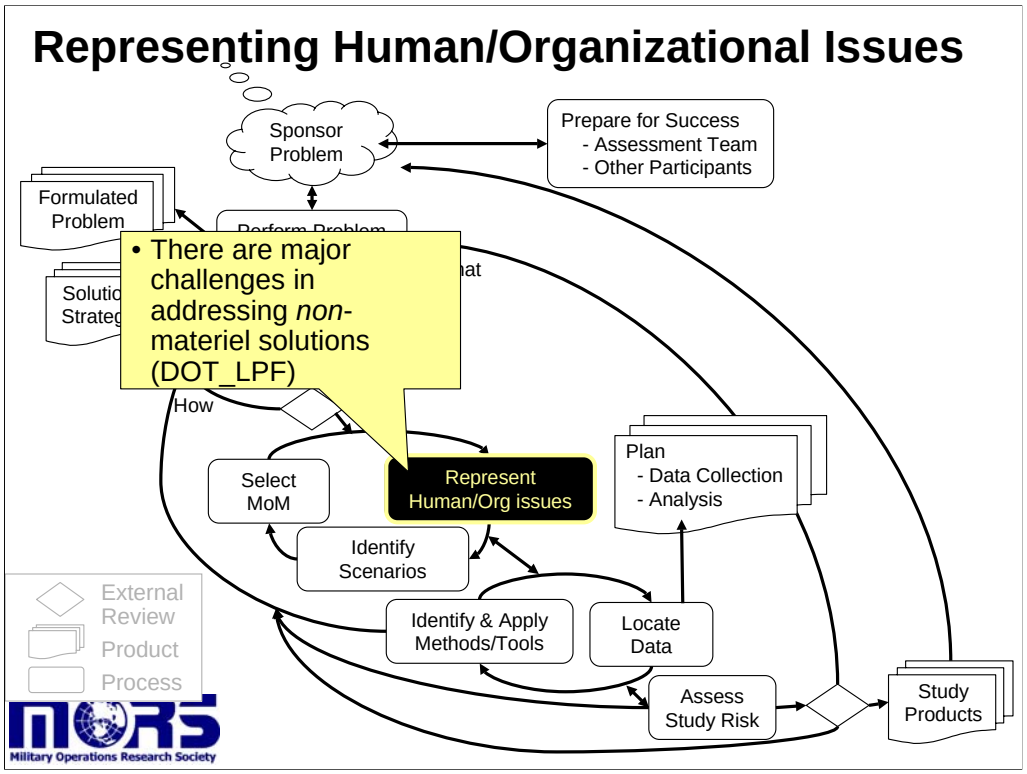
During one of the working group discussions, Kirk Yost opined that "scenario agnosticism is unworkable." In other words, he has concluded in his analyses in support of JCIDS that it has not proven fruitful to conduct analyses that are not in the context of one or more well-defined scenarios.

The workshop revealed that there was a general consensus among participating nations (e.g., UK, Australia, Canada), the Joint Staff, and Northcom, that a broad base of specific scenarios is key to performing effective CBP. It is notable that the other members of the TTCP are using a significant number of scenarios and mandating their use in CBP. This poses the issue for the US: Does this philosophy make sense for us?

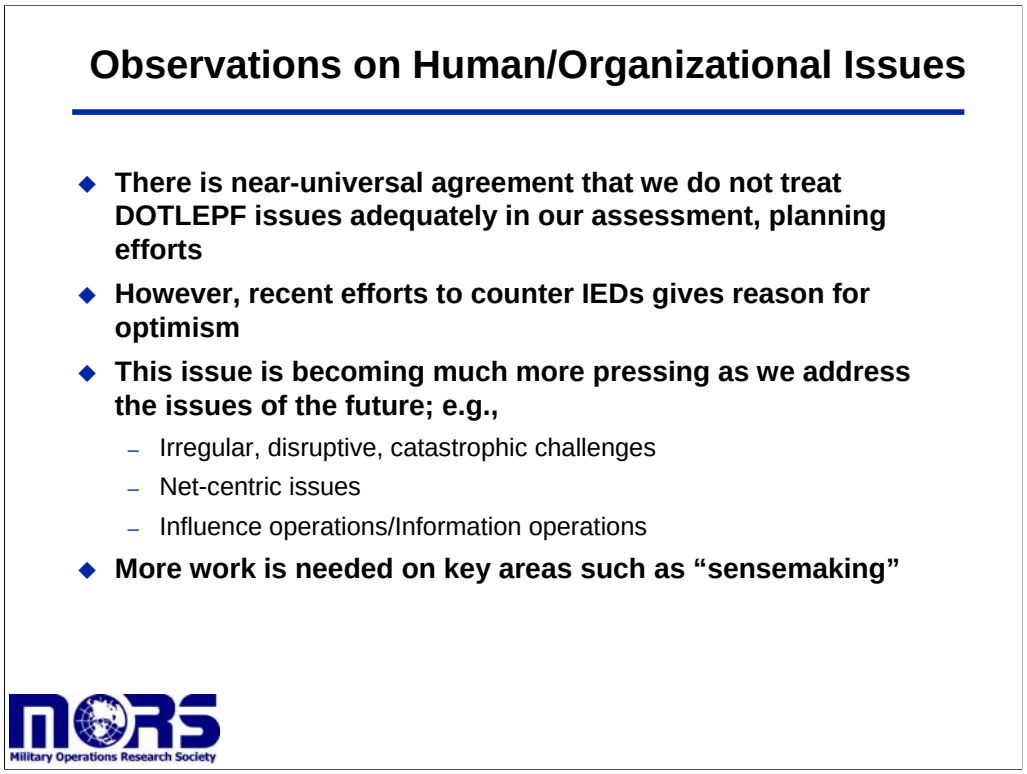
The workshop also served to highlight the uncertainty about how best to use scenarios. The following questions were posed that require serious consideration:

- Which scenarios should analysts use? The most likely? The most dangerous? The most stressing? Some combination of all types?
- What scenario parameters should be varied to gain the greatest insights into CBP?
- How many scenarios are enough and how many excursions are needed for the decision maker to have confidence that he understands scenario space adequately and has appreciated the issues of uncertainty and risk?

The Synthesis Group felt that it was appropriate to highlight a classic *blinding flash of the obvious*: Scenarios can be used by advocates of a specific perspective to "game the system." This reinforces the view that a substantial number of scenarios should be required to avoid this conundrum.

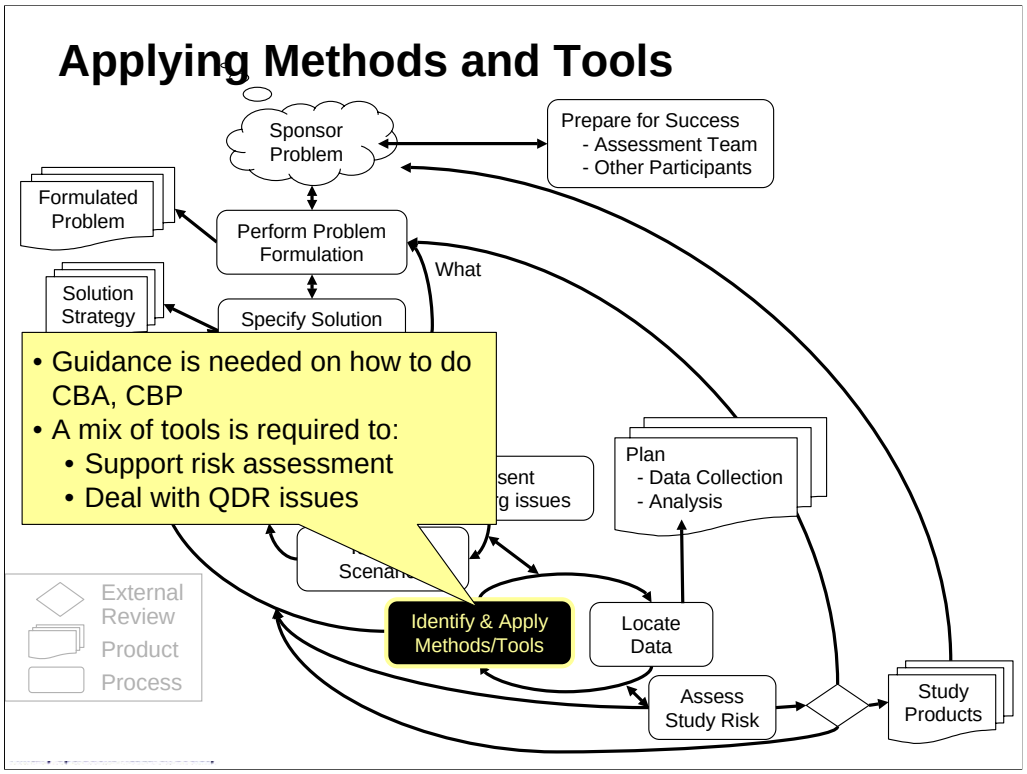


Historically, the analysis community has not done a good job treating the behavior of humans and organizations in their analyses. This shortfall is of particular significance in addressing non-materiel solutions (e.g., performing assessments that focus on the impact of changes in doctrine, organization, training, leadership and education, personnel, and facilities (DOTLEPF)).

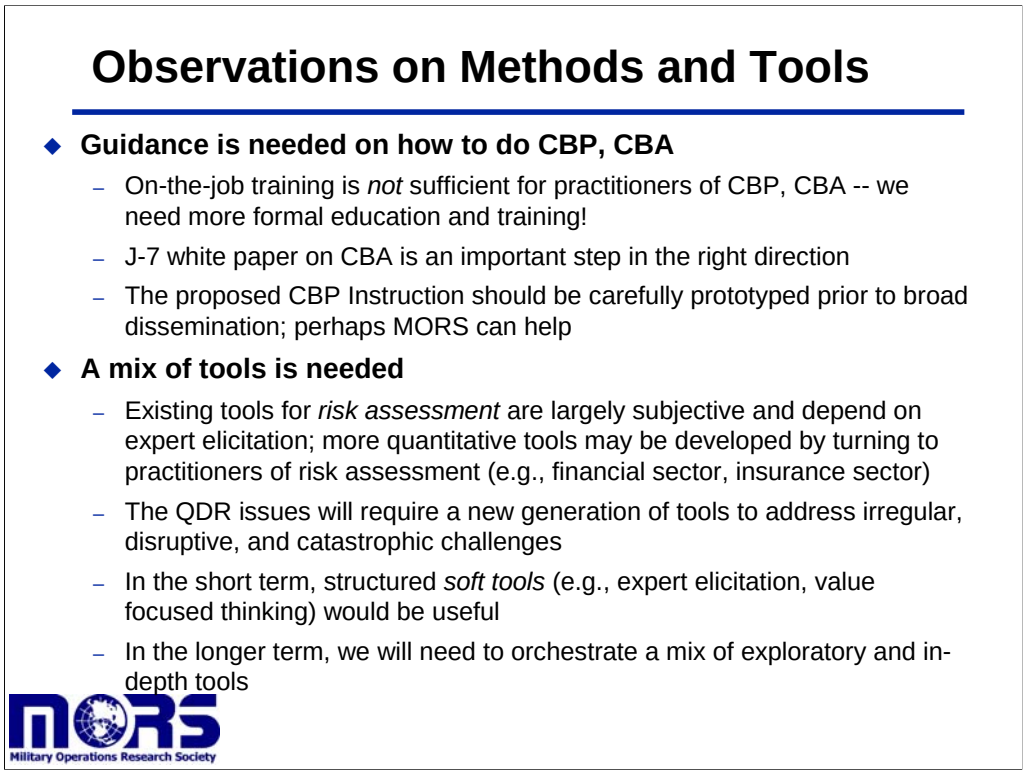


During the workshop, there was near-universal agreement that we do not treat DOTLEPF issues adequately in CBP. However, recent efforts suggest that there may be reason for optimism. For example, there has been an extraordinary effort to explore non-materiel opportunities to counter improvised explosive devices (IEDs) in Iraq (e.g., changing tactics, techniques, and procedures to respond to that threat; developing and implementing innovative training tools to enhance the safety of convoys).

As we look to the future, this issue is becoming much more pressing. The need to formulate and assess non-materiel solutions is of particular importance for the challenges posed by the QDR, the issues associated with net-centric operations, and the obstacles associated with influence operations/information operations.

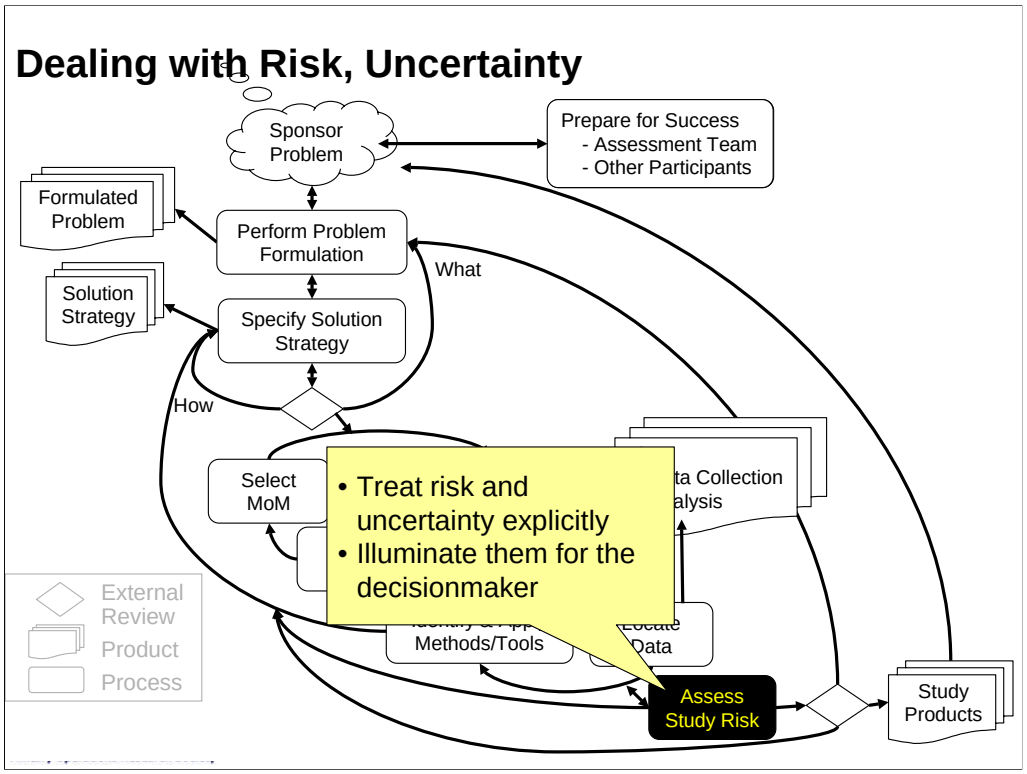


Substantial time and energy were devoted by most working groups to the identification and application of methods and tools for CBP. It was noted consistently that guidance is needed on how to do CBP/CBA. There was also general agreement on the need for a mix of tools to address the issues confronting senior decision makers. In particular, new tools are needed to support risk assessment and to deal with the issues raised in the QDR.

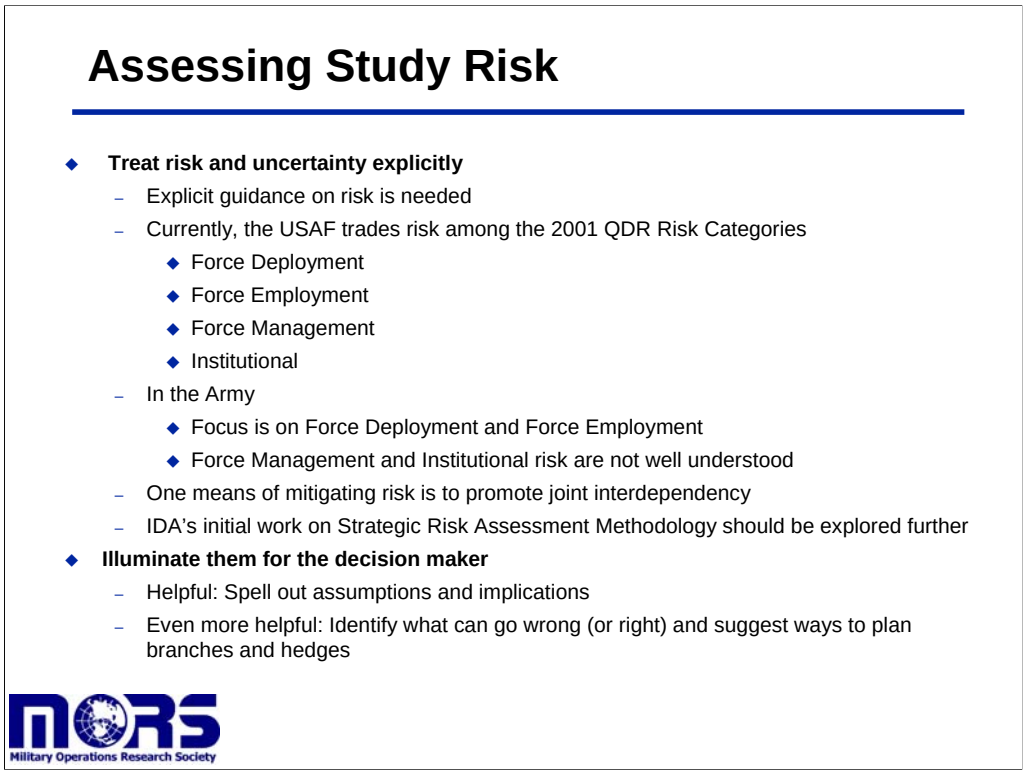


The issue of guidance on how to do CBA/CBP prompted considerable discussion. Many working groups stated that on-the-job training is not sufficient for the assessment community. This gave rise to a consistent recommendation for more formal education and training. Several of the working groups were exposed to a J-7, Joint Staff, white paper on CBA. The general consensus was that this was an important step in the right direction. Furthermore the white paper should be refined to reflect lessons recorded as analysts have the opportunity to apply its tenets. During the plenary session, it was mentioned that plans are underway to formulate a new CBP Instruction. It was observed that it would be prudent to carefully prototype the instruction before it is formally promulgated. The MORS community could be very useful in supporting such prototype efforts.

In the area of key tools, it was observed that existing tools for national security risk assessment are largely subjective and depend on expert elicitation. To develop the quantitative tools that the community requires it was recommended that we turn to experts that routinely perform such assessments (e.g., actuaries in the insurance sector; managers of hedge funds in the financial sector). Furthermore, the QDR issues will require a new generation of tools if we are to be able to address the challenges posed by irregular, disruptive, and catastrophic threats. In the short term, it would be useful to develop and apply structured *soft tools* (e.g., structured expert elicitation, value focused thinking). In the longer term, we will need to orchestrate a mix of exploratory and in-depth tools. As an example, TRAC-MTRY has recently orchestrated agent based models and constructive M&S to implement that strategy.

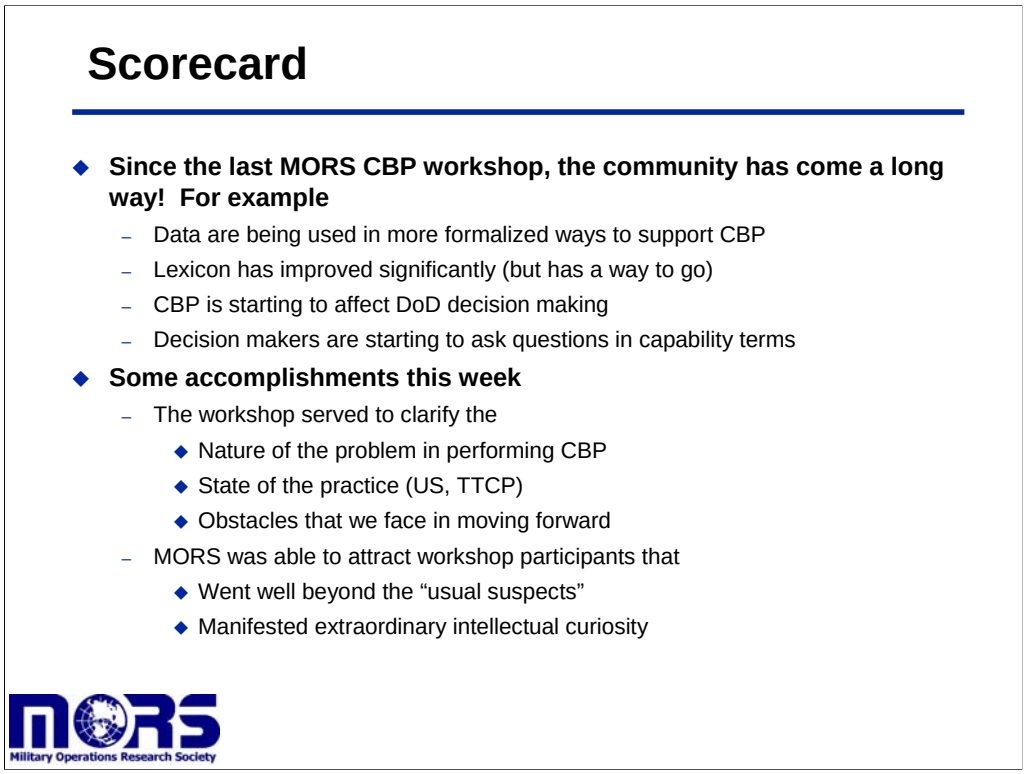


One of the final functions in the NATO COBP is to assess study risk. To do so, it is important to treat risk and uncertainty explicitly and to illuminate them for the decision maker.



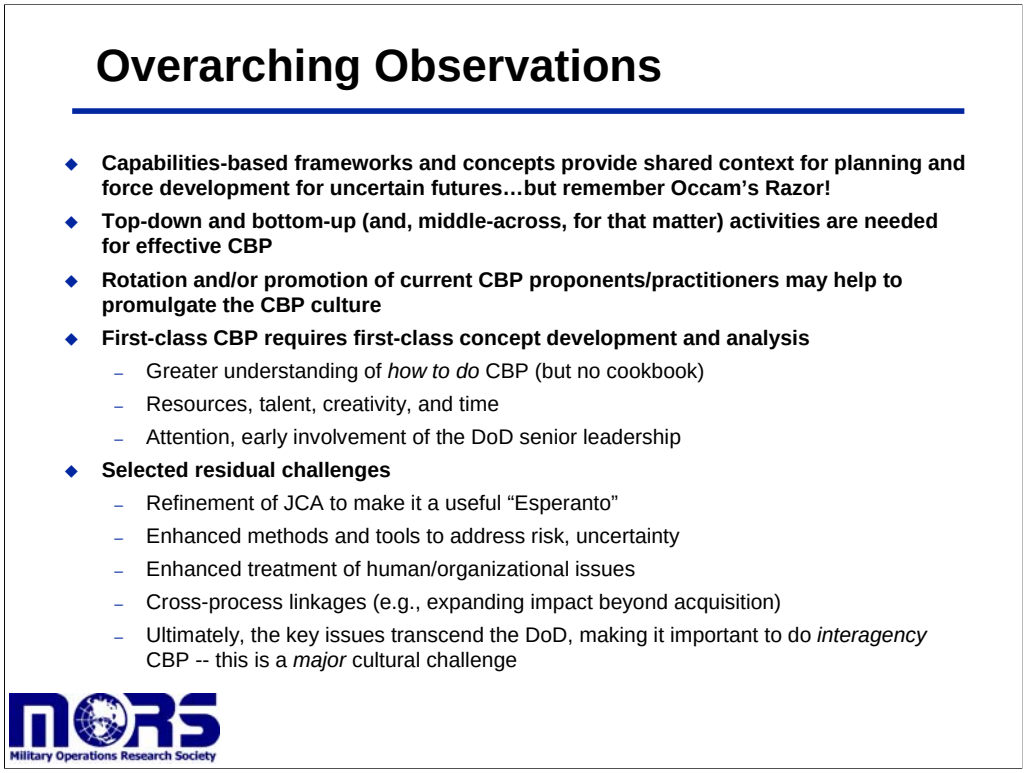
In order to treat risk and uncertainty explicitly, decisive guidance on risk is needed. Currently, the USAF trades risk among the 2001 QDR risk categories: Force Deployment, Force Employment, Force Management, and Institutional. Alternatively, in the Army, the focus of risk assessment is on Force Deployment and Force Employment. They note that they do not adequately understand the risks associated with Force Management and Institutional factors. One of the working groups observed that one means of mitigating risk is to promote the concept of joint interdependency. Furthermore, the workshop served to showcase IDA's initial work on Strategic Risk Assessment Methodology. That initial work showed promise and that methodology should be explored further.

One of the key challenges for the analyst is to illuminate risk and uncertainty to the decision maker. Paul Davis stated that one useful step would be to spell out assumptions and implications explicitly. He observed that it would be even more helpful to identify what can go wrong and to suggest ways to plan branches and hedges.



The Synthesis Group thought that it was appropriate to formulate a scorecard for the workshop. It was concluded that the community has come a long way since the last MORS CBP workshop in 2004. To illustrate this progress, consider the following. Thanks in part to the Joint Data System, data are being used in more formal ways to support CBP. Similarly, due to the efforts of the JCA, the lexicon has improved significantly. However, as prototypical studies have revealed, the JCA still has a way to go. Many speakers observed that CBP is starting to affect DoD decision making. As one manifestation, decision makers are starting to ask questions in capability (vice platform) terms.

During the week of the workshop, several major accomplishments were realized. The workshop served to clarify the nature of the problem in performing CBP, articulate the state of the practice of CBP both in the US and selected alliance nations, and identify the obstacles that we face in moving forward. It was particularly notable that MORS was able to implement a workshop that was characterized by two key aspects: Its membership went well beyond the "usual suspects" (i.e., many of the attendees were not operations analysts) and the participants manifested extraordinary intellectual curiosity.



The Synthesis Group elected to complete its report by citing several key overarching observations. First, capabilities-based frameworks and concepts provide a shared context for planning and force development for uncertain futures. However, as noted in Occam's Razor, there is value in employing the simplest framework and concept to meet the communities needs.

Second, a chart was used frequently in the plenary session, that stated that JCIDS constituted a change from a bottom-up to a top-down process. Members of the Synthesis Group believe that neither *pure* strategy is appropriate: We saw the need for top-down, bottom-up, and middle-across activities for effective CBP.

Third, it was observed that several key CBP proponents/practitioners have taken on more senior roles (e.g., GEN Pace has moved from VCJC to CJCS). These changes may help to promulgate the CBP culture in the DoD.

Fourth, it was emphasized that first-class CBP requires first-class concept development and analysis. This demands greater understanding of how to do CBP with the understanding that there is no simple *cookbook*. This will require resources, talent, creativity, and time on the part of the analysis community and attention and early involvement of the DoD senior leadership.

Finally, the Synthesis Group identified several residual challenges for the community. First, further refinement of JCA will be needed to make it a useful "Esperanto." Second, enhanced methods and tools are needed to treat risk and uncertainty adequately. Third, additional efforts are needed to improve our ability to treat human and organizational issues in our assessments. Fourth, we need to improve our cross-process linkages to ensure that our results are consistent across key DoD institutional processes. Finally, the key issues ultimately transcend the DoD. Thus, we will have to address the cultural problem of performing CBP in an interagency (and perhaps multinational) context.

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MORS Workshop
Capabilities-Based Planning II
Identifying, Classifying and Measuring Risk in a Post 9-11 World

Acronyms

AEF	Air and Space Expeditionary Force
AoA	Analysis of Alternatives
AP	Adaptive Planning
AT&L	Acquisition Technology and Logistics
BA	Battlespace Awareness
C2	Command and Control
C4I	Command, Control, Communications, Computers and Intelligence
CAA	Center for Army Analysis
CBA	Capability Based Assessment
CBP	Capabilities Based Planning
CCJO	Capstone Concept for Joint Operations
CD	Concept Decision
CDD	Capability Development Document
CDR	Concept Decision Review
CE	Capability Engineering
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
COA	Course of Action
COBP	Code of Best Practice
COCOM	Combatant Command
CONOPS	Concept of Operations
COTS	Commercial Off The Shelf
CP	Capabilities Packaging
CPD	Capabilities Production Document
CPG	Contingency Planning Guidance
CPT	Capability Package Template
CRA	Comparative Risk Analysis
DAE	Defense Acquisition Executive
DoD	Department of Defense
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities
DPS	Defense Policy and Strategy
DSC	Decision Support Cell
EoA	Evaluation of Alternative
FAA	Functional Area Analysis
FCB	Functional Capabilities Board
FFRDC	Federally Funded Research and Development Center
FNA	Functional Needs Analysis
FP	Force Package

FPC	Force Planning Construct
FS	MORS Fellow of the Society
FSA	Functional Solution Analysis
GAO	General Accounting Office
GFM	Global Force Management
GOTS	Government Off The Shelf
GWOT	Global War on Terrorism
HD	Homeland Defense
HQDA	Headquarters Department of the Army
IAMD	Integrated Air and Missile Defense
ICCARM	Integrated Cross-Capability Assessment and Risk Management
ICD	Initial Capabilities Document
IED	Improvised Explosive Device
IGO	Inter-Governmental Organization
IPL	Integrated Priority List
IPR	Interim Progress Review
IPT	Integrated Planning Team
IRG	Institutional Reform and Governance
IW	Irregular Welfare
JADMSC	Joint Analytic Data Management Steering Committee
JC	Joint Capability
JC2	Joint Command and Control
JCA	Joint Capability Area
JCD	Joint Concept Development
JCD&E	Joint Concept Development and Experimentation
JCIDS	Joint Capability Integration and Development System
JCS J7	Joint Chiefs of Staff Operational Plans and Joint Force Development
JCS J8	Joint Chiefs of Staff Force Structure, Resources and Assessment
JFC	Joint Force Commander
JIC	Joint Intelligence Center
JICM	Joint Integrated Contingency Model
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JOC	Joint Oversight Committee
JPG	Joint Planning Group
JQRR	Joint Quarterly Readiness Review
JROC	Joint Required Operational Capability
LPTR	Linking Plans to Resources
MCO	Major Combat Operations
MDA	Missile Defense Agency
METT-T	Mission, Enemy, Troops, Terrain - Time
MOEs	Measures of Effectiveness
MOFP	Measure of Functional Performance
MOM	Measure of Merit
MOME	Measure of Mission Effectiveness
MOP	Measure of Performance
MOPE	Measures of Policy Effectiveness

MSFD	Multi Service Force Deployment
NCOE	Net Centric Operational Environment
NDS	National Defense Strategy
NDU	National Defense University
NECC	Net Enabled Command Center
NGO	Non-Governmental Organizations
NMS	National Military Strategy
NSS	National Security Strategy
OPLANS	Operational Plans
OSD	Office of the Secretary of Defense
OSD (AT&L)	OSD Acquisition, Technology and Logistics
OSD (PA&E)	OSD Program Analysis and Evaluation
OUSD	Office of the Under Secretary of Defense
PA&E	Program Analysis and Execution
PAT	Portfolio Analysis Tool
PE	Program Elements
POM	Program Objective Memorandum
PPBE	Planning Programming Budgeting and Execution
PPBS	Planning, Programming and Budgeting System
QDR	Quadrennial Defense Review
RFI	Rapid Fielding Initiative
S&T	Science and Technology
SAR/SAP	Special Access Program/Special Access Required
SECDEF	Secretary of Defense
SME	Subject Matter Expert
SO	Special Operations
SOF	Special Operations Forces
SPG	Strategic Planning Guidance
TCPT	Tailored Capability Package Template
TOA	Table of Allowance
TPG	Transformation Planning Guidance
TTCP	The Technical Cooperation Program
UCP	Unified Command Plan
UIC	Unit Identification Code
UJTL	Universal Joint Task List
USD	Under Secretary of Defense
USEUCOM	United States European Command
USJFCOM	United States Joint Forces Command
USMA	United States Military Academy
USNORTHCOM	US Northern Command
USTRANSCOM	US Transatlantic Command
UTC	Unit Type Code
VCJCS	Vice Chairman, Joint Chiefs of Staff
WG	Working Group
WMD	Weapons of Mass Destruction
WOT	War on Terror

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Web Version, 13 Feb 06

Terms of Reference

MORS Workshop:
Capabilities-Based Planning II: Identifying, Classifying and Measuring Risk in a Post 9-11 World

1. Background:

The October 2004 MORS workshop on Capabilities-Based Planning (CBP) evoked an enthusiastic response from the more than 230 attendees. The goal of the workshop was to inform the community as to where the Department of Defense was in implementing this new paradigm for planning, to review the lexicon associated with this approach and suggest changes, and to exchange concepts and new ideas that will further the development of the Secretary's CBP initiative. The workshop included classified sessions where U.S. members explored specific implementations in the Department as well as unclassified sessions that included specific examination of how some of our allies are using CBP. Because CBP is a relatively new initiative, a special educational session, chaired by Sue Iwanski, consisting of seven informative briefings was held on Monday afternoon. Another unique feature is that one of the charges of the workshop was to identify follow-on topics for a follow-on workshop already in the planning phases at the time of the original workshop execution. A key feature of both the October workshop and continuing discussion in the Department is the prospective CBP approach to risk. In December 2004, the MORS Sponsors approved combining the proposed follow-on CBP workshop with planning for a dedicated workshop to address risk in order to provide specific focus to the risk effort while continuing to evolve understanding and application of the CBP initiative.

The context of this new workshop includes:

- A changing strategy with greater emphasis on catastrophic, disruptive and irregular warfare challenges (WMD, GWOT, stability operations, etc.)
- A change in focus from systems to capabilities

2. The Technical Cooperation Programme (TTCP) Support.

This workshop is supported by the TTCP. The Technical Cooperation Programme (formerly known as the Tripartite Technical Cooperation Program) has existed since 1957 and was formalized by way of a 1994 five country (UK, AS, CA, NZ, and US) memorandum of understanding. The aim of the TTCP is to foster cooperation in science and technology needed for national defense. TTCP encompasses basic research, exploratory development, and demonstrations of advanced technology development. This scope includes the exploration of alternatives and concepts prior to development of specific weapon systems; feasibility demonstrations of innovative new concepts, techniques or equipment and their test and evaluation; the pursuit of alternate solutions to potential military problems; and generic systems. Collaboration within TTCP provides a means of acquainting the participating nations with each other's defense R&D programs (ref: TTCP website).

Some TTCP members have participated in previous capability based planning activities and possess a wealth of knowledge and diverse perspectives based on their own national approaches. Including the TTCP in the MORS conference is intended to infuse the workshop with fresh perspectives and share information to enhance each nation's common goals for developing a better understanding of CBP and its uses.

3. Goals and Objectives.

There were several reasons for the October 2004 workshop:

- To identify ways to collaborate and cooperate to improve consistency, including with the allies
- To review the lexicon and suggest changes
- To identify emerging needs in theory, data, and methods – and suggest solutions
- Review the Department's performance in implementing CBP (QDR, other OSD/JS activities, Services, etc.)

This workshop will build on the results of the previous activity while addressing the latest DoD leadership guidance on the capabilities-based approach, expanding the theory of CBP with specific focus on risk, and developing analytic approaches to the multiple levels of planning addressing appropriate risk issues at each level. Specific objectives include:

- Assess how CBP can be used to help in planning and decision-making in the Department
- Expand the theory of CBP with specific focus on risk and developing analytic approaches across the full spectrum of CBP
- Suggest actions the Department may take to help implement CBP DoD-wide (such as training needs, documentation, etc.)

To achieve these objectives, the workshop will examine a number of overarching questions:

- What are the best approaches for doing capabilities-based strategic (level 1), mission (level 2) and systems (level 3) analysis?
    - What are the linkages between levels of analysis?
    - Do we need to consider systems when analyzing capabilities?
    - What tools exist to assess capabilities?
- How do we support assessments in the Joint Capability Areas (JCAs) and how can they be incorporated into community models?
    - Do we need to update campaign models to reflect capabilities?

- How do we articulate accepting risk in one capability or JCA to reduce risk in another? What is the risk relative to a capability?
    - How do we do trade-offs among JCAs?
    - How do we articulate reducing capability in one area to improve capability in another—what are the metrics?
    - How do you treat dependencies between capabilities? What implications does this have to risk?
- How do we relate resources to JCAs?
    - How do we decide where to invest the next dollar and why?
- If capability analysis begins with gap identification, how do we include new technologies that produce significant efficiencies in areas without gaps?
- What kind of training/skills do people need to implement CBP. Do we need to establish training programs?

In particular, this workshop will focus on both the emerging procedures used by the Department to address CBP as well as the tools, data, metrics, and relationships of process with specific focus on risk issues.

4. Approach and Sequence of Events

a. General Concepts

- A "Capability Based Planning" tutorial is scheduled for Monday, 3 April from 1330-1700. Areas to be covered include: Adaptive Planning, Joint Capability Integration and Development System (JCIDS), Joint Capability Assessments (JCAs), the Analytic Agenda, and outcomes of the MORS 2004 workshop.
- The workshop will officially begin with a plenary session starting Tuesday morning with specified working groups formed to address key issues in the ensuing days. Observations will be shared on Thursday afternoon.
- Working Groups will be split into sub-groups of 15-20 to facilitate discussion
    - Larger groups can share presentations intended to provoke thought, but will then break down into smaller groups for discussion and creative product development.
    - Focus will be on identifying viable analytic approaches, particularly with regard to risk.
- Thursday PM will be used to present each working group's insights, observations, and recommendations.
- Working group output and cross-cutting issues identified and reported by the synthesis group, will serve as basis for final report.

b. Plenary, Tuesday 0800-1530

- *Keynotes*: Senior leaders in OSD and the Joint Staff will deliver the keynotes. They are expected to stress the continuing importance of CBP in the Department of Defense, to provide emerging insights, and to establish new challenges and expectations from the OR community, particularly with respect to risk.
- *Overview of OSD and JCS Initiatives:* This briefing will provide updated definitions and processes (i.e JCIDS, EPP, and the Analytic Agenda) and summarize actions taken as a result of or since the October 2004 CBP Workshop.
- *Analyzing Risk:* This briefing by Joint Staff (J5) will address efforts in assessing and understanding risk.
- *Review of pertinent MORS and Department activities*: This includes the October 2004 Workshop, items identified by ongoing studies, such as the Quadrennial Defense Review, and past practices for addressing risk.
- *International:* Participating TTCP members will discuss their national CBP procedures with a focus on acquisition processes and risk, differences from the US processes, recent promising initiatives, and areas needing further development, experimentation and assessment. Dr. Ben Taylor will update the group on TTCP initiatives.
- Challenge to working groups: Identify and further develop Capabilities-Based Analysis along performance, cost and risk dimensions

c. Working groups, Tuesday afternoon to Thursday noon.

- *Guidelines*
    - Address strategy and process issues with focus on risk.
    - Use lexicon developed in the October 2004 workshop.
    - Include QDR and adaptive planning as well as process and methodology issues.
    - Address users and applications.
    - Provide insights into Service programs as each has instituted some form of CBP and, through the QDR process, ways of addressing risk.
    - Update implementation of CBP initiatives by DoD representatives in the functional areas of analysis, acquisition, planning and training.
    - Draw upon the experiences of TTCP (UK, CAN, AUS, NZ).
    - Summarize and focus on common themes (synthesis group).

- *Working Group (WG) Issues and Output:*

  - **WG 1 - CBP and the QDR (Chair: Chris Lamb)**:
    - Process used to conduct the QDR (top level)
    - Limitations encountered
    - How CBP was used to support QDR decision-making
    - Output: Suggestions for next QDR
      - Process (to include the value of interagency/coalition participation)
      - Analytical needs
      - Data support

  - **WG 2 - Improving the CBP Process: Strategy to Joint Concepts to JCIDS/EPP (Chair: Joe Bonnet)**
    - Current process, how strategy impacts the defining and developing of joint capabilities, the role of JCAs, JOpsC, JOCs, JFCs, and JICs when conducting strategic analysis, use of analytic agenda, and linkage of JCIDS to the EPP
    - Service interdependency considerations
    - Output:
      - Assessment of how well the current process meets the concepts of CBP
      - Suggestions on how to:
        - Improve the process, including phenomenological understandings, analytic methodologies and tools, and data
        - Provide better analytical support
      - Characteristics of a good analysis (of a Capabilities Based Analysis?)

  - **WG 3 – Improving the CBP Process: JCIDS to Acquisition (Chair: Mike Novak)**
    - Current connection of JCIDS to the acquisition process
    - How analysis is used to help resolve issues in this area, and examples of good analysis
    - Output: Suggestions to improve
      - Process (role of CBP)
      - Analytical and data support

  - **WG 4 – CBP Support to Strategic Decisions Across Domains (Chair: Kirk Yost)**
    - Current methods for deducing capabilities, needs, and risk tolerances into recommended changes among domains
    - CBP constructs to deal with the apportionment of forces problem
    - Methods used to translate capabilities, needs, and risk tolerances into recommended changes among domains (e.g. VFT, portfolio analysis,...)
    - Comparison of DoD approaches to similar allied constructs
    - Output
      - Guidance from CBP we need but are not getting
      - How CBP results should influence strategic guidance
      - Assessment of analytical tools and data available to support process

  - **WG 5 – CBP Support to Decisions within a Domain (Chair: Dave Markowitz)**
    - Use of risk within mission and functional areas (irregular, catastrophic, conventional, and disruptive)
    - Quantitative and qualitative metrics for measuring risk
    - Incorporation of cost or resources into capability evaluation

- Analytical tools requirements and comparison of DoD-level constructs and approaches to methodologies used by our allies and/or the Services
- Analysis approaches for doing trades within mission areas
- Output:
  - Definition of mission areas
  - Summary of analysis approaches
  - Identify limitations in tools and data; and suggest ways to improve

- **WG 6 – CBP and Adaptive Planning (Chair: Tim Hoffman)**
  - Current program for implementing Adaptive Planning, to include needed standards, definitions, techniques, and approaches
  - Process and analytical support tools used or needed
  - Relationship between Adaptive Planning, DRRS, JC2 and GFM and potential changes to improve required or anticipated interactions
  - Examples of successful adaptive planning applications
  - Training/skills needed for effective Adaptive Planning
  - Output: Suggestions to improve the
    - Process
    - Analytical and data support

- **Synthesis Working Group (Chair: Stu Starr, FS)**

5. Agenda

A review of CBP basics will be offered on Monday as an option for any interested Workshop attendee. The first full day (Tuesday) will consist of plenary sessions. A wide range of community components will present their views on CBP and risk—how the recent efforts in the community have adapted and what more they need from the process.

Day/Time	Activity	POC	Location
Monday			
1330-1700	CBP Review of the Basics	Tom Allen, FS	BAH, McLean, VA
1600	Working Group Chairs Warm-up	Tom Allen, FS	BAH

Tuesday			BAH
0700	Registration and Continental Breakfast		
0800	MORS President's Welcome	Col Suzanne Beers	
0805	Welcome by Host	BAH Rep	
0810-0835	Keynote Addresses	OSD (Policy)	
0840-0905		OSD (AT&L)	
0910-0935		OSD (PA&E)	
0940-1005		Joint Staff (J8)	
1010-1035		Joint Staff (J7)	
1035-1100	Discussion	Tom Allen, FS / Jim Bexfield, FS	
1100-1115	Break		
1115-1205	CBP Initiatives	(J7/J8)	
1205-1245	Analyzing Risk	J5	

1245-1330	Lunch (in working group rooms)		
1330-1345	Review of 2004 MORS Workshop	Jim Bexfield, FS	
1350-1520	Progress by TTCP Countries	Dr. Ben Taylor	
1520-1530	Break		
1530-1540	Charge to the Working Groups	Workshop Chairs	
1545-1700	Working Group Session 1		
1700	Adjourn to Mixer		

Wednesday			BAH
0800	Working Group Sessions 2-5		
1700	Adjourn to WG Chair Hot Wash		

Thursday			BAH
0800	Working Group Sessions 6-7		
1300-1630	Outbriefs		
1300	Working Group (WG) I: CBP and the QDR	Chris Lamb	
1330	WG II: Improving the CBP Process: Strategy to Joint Concepts to JCIDS/EPP	Joe Bonnet	
1400	WG III: Improving the CBP Process: JCIDS to Acquisition	Mike Novak	
1430	WG IV: CBP Support to Strategic Decisions Across Domains	Kirk Yost	
1500	WG V: CBP Support to Decisions within a Domain	Dave Markowitz	
1530	WG VI: CBP and Adaptive Planning	Tim Hoffman	
1600	Synthesis Group	Stu Starr, FS	
1630	Wrap-up		
1700	Adjourn		

6. Attendees.

Attendance will be controlled via invitation and limited to 150-200. Attendees will include invited experts from OSD, all Services, the Joint Staff, Federally Funded Research and Development Centers, operational commands, DoD contractors, analysts from other government departments, allied nations' officials involved in CBP, commercial firms, and academia. Workshop chairs will control membership of their sessions in conjunction with the organizing committee. We expect attendees from the TTCP committees representing UK, AS, CA and perhaps NZ.

7. Products.

There will be up to three specific products generated from this workshop:

- An executive summary addressing the findings, conclusions, and recommendations
- A proceedings document containing the summaries of all sessions and copies of appropriate briefing slides and presentations
- A *PHALANX* article
- A briefing to the MORS Sponsors and to a special session at the 74th MORS Symposium

8. Planning and Organizing Committee

General Chairs:	Tom Allen, FS, Jim Bexfield, FS
MORS Advisors	Jim Bexfield, FS, LTC Bob Larsen
OSD/Policy Rep.	COL Pat Kelly
OSD/AT&L	Kristen Baldwin
Air Force	Cliff Tompkins
Army	
Navy	
Marine	
Technical Advisors	Lisa Disbrow, Raleigh Durham
Allies	Dr. Ben Taylor (UK)
Bulldog	Niki Goerger
Synthesis Group	Stu Starr, FS
Assistants	Harry Lewis, Mark Reid

9. Administration

- MORS POC: Ms. Natalie Kelly
  MORS, 1703 N. Beauregard St, Suite 450, Alexandria, VA 22311
- Dates: 4-6 Apr 2006 (CBP Basics Tutorial at BAH on 3 April from 1330-1700)
- Location: Booz Allen Hamilton,
  8283 Greensboro Drive, McLean, VA 22102
- Conference Fee: US Federal Government $310 and $545 for all others; Plenary (1 day only) Government $160; Non-Government $280
- Attendance: 150-200 by invitation
- Classification: Highest classification level for this workshop will be SECRET.
  - Please ensure proper diligence in having classified briefs approved for dissemination to an audience that includes cleared foreign nationals associated with TTCP (UK, AS, CA, NZ) and defense contractors.
  - International attendees will forward visit authorization requests (VARs) and have their briefings approved for foreign dissemination using their own national foreign clearance procedures.

10. Capability-Based Planning Terminology. CBP terminology was developed during the October 2004 MORS CBP workshop and approved by the CJCS (ref: CJCSM 3500.04C). These accepted definitions (listed below) will provide a common basis for CBP II deliberations and recommendations. Critique of this terminology is not an objective of the workshop.

Capability: The ability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks.
Task: An action or activity (derived from an analysis of the mission and concept of operations) assigned to an individual or organization to provide a capability.
Standard: Quantitative or qualitative measures for [specifying] the levels of performance of a task.
Condition: Variable of the operational environment including scenario that affects task performance.
CONOPS: The overall picture and broad flow of tasks assigned to subordinates/supporting entities within a plan by which a commander maps capabilities to effects to accomplish the mission for a specific scenario.
Effect: A change to a condition, behavior, or degree of freedom.

Endstate: The set of conditions, behaviors, and freedoms that defines achievement of the commander's mission.
Mission: The purpose (objectives and endstate) and tasks assigned to a commander.
Measure: Provides the basis for describing varying levels of task performance.